RealcommEDGE

@ the Intersection of Commercial/Corporate Real Estate and Technology

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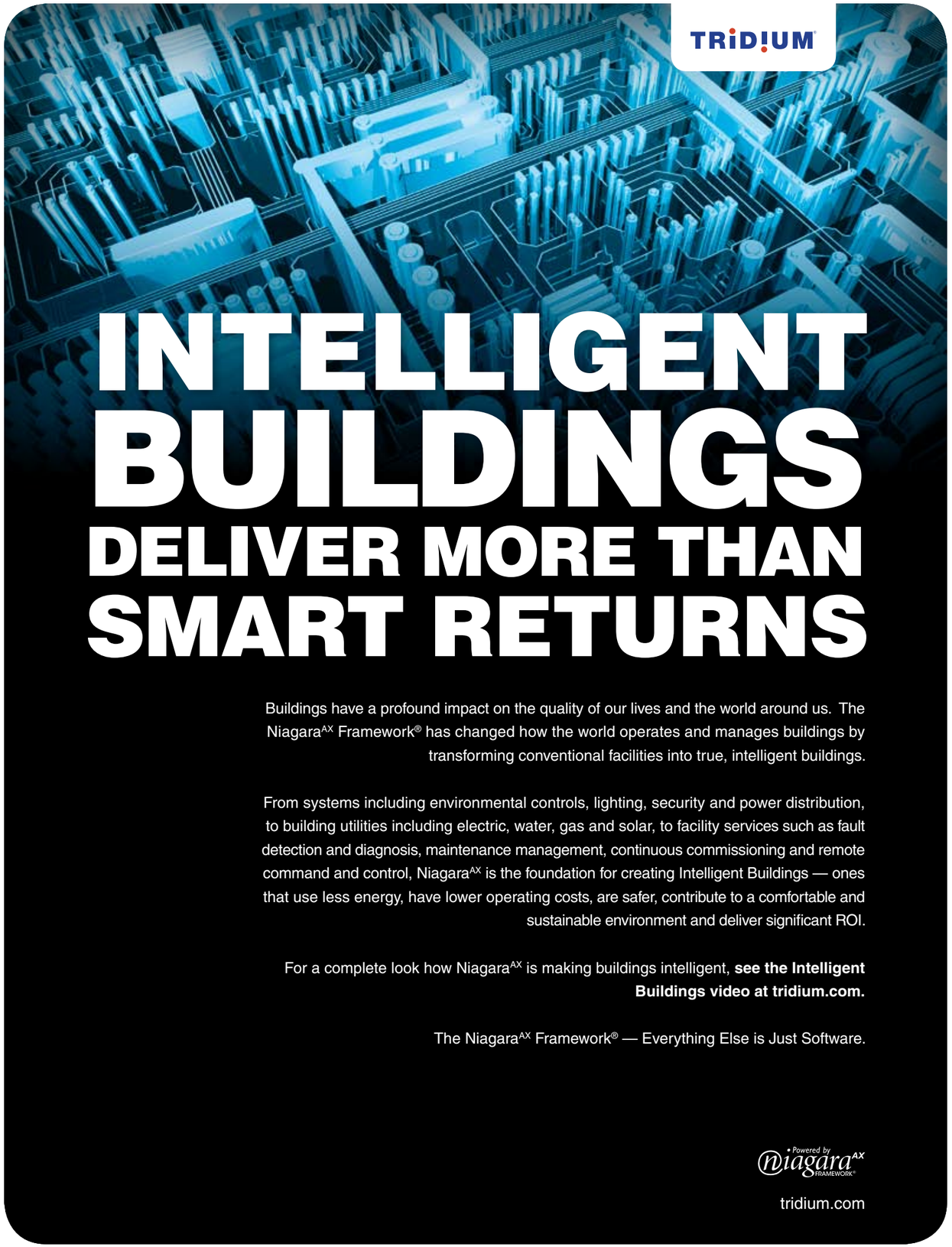

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FAST FORWARD: Transforming Real Estate Operations with Technology, Automation and Innovation!

Jim Young
Founder and CEO
Realcomm Conference Group

This will be the 14th year of the Realcomm conference and what a wild ride it has been. Our first event in 1999 was the natural evolution of smaller events we had been doing around the country. We figured we would 'throw a party' and see who came. Although there were a number of major real estate solutions providers, the real estate technology, automation and innovation industry was pretty much disconnected. The conference was a success and here we are 14 years later.

The journey has been interesting and a lot has happened. Right after our inaugural event, we landed right in the middle of dot-com (or as some would say, dot-bomb). For two years (2000 and 2001), we rode the wave of crazy technology and get-rich schemes. After the crash, for the next seven years we continued to bring the industry together, pushing innovation, uncovering new ideas, promoting collaboration and working towards transforming our industry into a more streamlined, efficient, innovative and digital industry … we were making pretty good progress.

Then our second bump in the road … the Great Recession of 2008. Talk about hitting a wall. You could clearly see the impact that the larger economic issues were having on our real estate technology industry. Budgets were slashed, business slowed down and most people were concerned with keeping the lights on and were not looking too far into the future or trying to establish three-to-five year plans … it was all about survival.

Now, four years later in 2012, we find the level of optimism is on the rise. While we are not yet ready to uncork the champagne, people are moving forward and some would say they are moving faster than previously expected.

The phrase I hear the most is, "optimistic yet cautious." While we cannot ignore the looming big problems such as our deficit, energy and natural resource constraints, as well as political and financial global instability, there are reasons to move forward … in fact to move fast forward.

If you stand back and look at what has happened over the last 14 years, it is pretty interesting. The real estate technology, automation and innovation industry has come together, has survived dot-com (with some really good ideas emerging), continued to build a solid foundation through 2003-2007, survived the Great Recession of 2008, has been impacted by the consumerization of technology (iPad and other devices) for the last four years and is now ready to blast off and move *Fast Forward*.

If you think about it, dot-com threw some very big money at some big problems and even though there was a crash, good ideas survived. We then had some time to rethink the folly part of the journey and get back to basics, with some big ideas (Google, eBay, Facebook) continuing to prove that the ideas might have been right … it was the unrealistic business plans, unconstrained greed and execution that messed us up.

The Great Recession was another resetting point, this time financially. The global markets had been flooded with very cheap money and that led to accelerated business activity and a multitude of bad decisions. Once the faucet was turned off, the impact was great and everyone was forced to rethink the fundamentals of business. In the real estate industry, we called it "getting back to basics."

In reality, this was actually a good time for the real estate technology industry. For a long time our pleas for efficiency, transparency, innovation and hyper-effectiveness were drowned out by business activity that was being fueled by the enormous amount of capital and the free-wheeling business atmosphere. After we absorbed the initial shock in 2008, the industry was ready to listen to what the real estate IT industry had to offer.

It was a combination of a drive to efficiency (saving every penny you could) and the arrival of an accelerated introduction of consumer technology, as well as platforms such as cloud computing and M2M (Intelligent Buildings) that created the perfect storm that we find ourselves in now. Hence the theme, *Fast Forward: Transforming Real Estate Operations with Technology, Automation and Innovation!*

I believe that we are poised for an explosive rate of technology adoption and integration into the business of Commercial, Corporate, and Institutional Real Estate industry over the next few years. Whether it is the CEO walking in with his iPad and demanding a graphically friendly financial report, or the Facility Manager reaching out to the CIO to discuss smart buildings, this new interest, by everyone in a real estate company, fuels the fire of accelerated adoption. There has never been a time where so many fundamentals are in place to ignite explosive interest and acceptance throughout the entire organization.

This year at Realcomm and at our new event focused on Intelligent Buildings, IBcon, there is something for everyone: Operations, Finance, Investment, Marketing, Property/Asset Management, Facilities, Energy, Sustainability and more. Given that technology is touching every department in a real estate organization, we want to make sure the technologies are presented, every department is represented and that the different departments are working together to understand these transformational changes.

In some ways it is beginning to feel like 1999 … the eve of the dot-com boom. We have learned hard lessons from that experience and we were forced by the Great Recession to refocus on efficiency. We could be on the brink of a major business cycle that puts technology, automation and innovation at the center of more real estate business decisions than ever before.

Finally, we moved from "Show Me the ROI" in 2010, to "Creating Business Value" in 2011 to "FAST FORWARD" in 2012. Hold on to your hats and join us for Realcomm and IBcon 2012 … it should prove to be a very interesting three days in Las Vegas. •

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Data Visualization:
It's the Experience That Counts

Colin E. Graham OAA, MRAIC
President + CEO
Founder, Arcestra Inc.

When was the last time you typed a letter? Remember 'WhiteOut'? Remember when you were convinced email was just for technophiles? When did the technology of the Internet and email become transparent for most of us? When did 'email' become a verb?

In my career as an architect and while building a new technology company, Arcestra, that brings a visual dimension to real estate relationships, it has become clear that we need to imagine new possibilities for information management in real estate. In the same way that we learned to imagine mail without paper, it's now time that we see beyond data, listings and leases to the spatial potential they represent. We need to use information in new ways to quickly and accurately answer the two main questions any potential tenant asks: "will we fit?" and "what will it cost?"

The impact of information technology on businesses and our lives has been self-evident and well reported. Massive amounts of data move around the world instantaneously, from financial transactions to homemade videos on YouTube. We're all connected through Facebook, Twitter and LinkedIn. As many have argued, we are reaching a greater symmetry of information between 'publishers' and 'consumers', so much so that the lines between these two groups have virtually disappeared. Many intermediaries have found themselves, well, 'disintermediated.'

Look more deeply, however, and you'll find that the nature of current technology has forced us to adapt how we understand, learn and interact, and to conform to an engineer's vision of human behavior. From using the Start button to shut down your computer, to complex programs and applications that demand a specialist's knowledge to extract full value, the world of information technology has thrown up as many barriers to adoption as it has opportunities. We think this is normal, and have learned to work within these constraints, because there have been no alternatives.

Hollywood in particular, through films such as the iconic Minority Report, has given us an alternate vision, prescient and artistic expressions of advanced 'data visualization' and user interface (UI) technologies. These depictions of the near future have served to open our collective awareness to the promise of computer 'augmented reality', albeit without providing us with many insights surrounding clear utility, unique value or an obvious ROI. Cool for sure, but real? Useful?

Real, they are, and useful. The reality is much closer to the fantasies of Hollywood than you may think, in real estate and any other sector. Sophisticated software and devices have begun to appear that provide entirely new and valuable experiences of and relationships with information, spurred in large part by the growth of high-speed mobile networks, cloud-based and easily distributed information and Apple's ground-breaking iPad.

In the conservative world of commercial real estate, people have little affinity for ideas and terms like virtual or augmented reality, data visualization and others. These are buzzwords, for certain, abstract and somewhat geeky. Indeed, they have limited connection to current real estate business practices based largely on the strengths of personal relationships. In a relationship-based business, what value is reality, augmented or otherwise?

I would argue that the value is profound, in large part because the personal relationship will become just one part of how commercial real estate representatives and tenants interact. Today, we may not refer to augmented reality when we talk about being able to deliver web-enabled, up-to-date and accurate vacancy reports to the tenant brokers. Nor is the CFO conscious of the 'cloud' when reviewing the current performance reports on a portfolio of real estate assets distributed across the globe, simultaneously viewing the broad portfolio while drilling down into a specific report to learn why a particular flag or warning is flashing. Nor do we think about data visualization even when vacancy reports can be aggregated instantly according to type, size, asking rent, adjacencies, location and amenities across a portfolio or across portfolios. Yet these are central to how we now work, and are the first phase of a new relationship we have with information, enabled by technology. It won't stop there.

The next phase of technology is to push data into the background, to be replaced by a much richer experience, a more direct connection to how we truly see and absorb information and make decisions. In this new phase, the technology—and the barriers to ready adoption—disappears, to everyone's benefit, except perhaps the IT specialists.

Here's a scenario to consider, one that's not only valuable but attainable today. A potential tenant 'walks' an available space on any screen. The space is ideally configured for their requirements. They can see spectacular views of the surrounding city from any point in an office space occupied and efficiently utilized by their staff. The tenant can sit at specific office furniture sites laid out among attractive, flexible and accommodating areas for meeting, sales, service and administration.

Now consider that this experience can be developed essentially instantly, with minimal effort, marketing and sales expense. The experience is supplemented through the parallel generation of the full costs associated with the tenant improvements, including the fixture layout with all new and existing furnishings. That is truly augmented reality in the real estate world. And it's delivered in real-time for their needs in a building that has not yet received a building permit or even left the architect's drawing board…sorry, computer screen.

Because the tenant is genuinely engaged with the space, the data has evolved into experience—simple, human, understandable. It's no longer virtual reality, it is reality and the tenant is empowered to make a decision right then and there.

Then realize that this potential tenant needs six floors and that's enough to justify construction. Furthermore, just across the street, that very same tenant is seeing those very same requirements, laid out in your competition's proposed new building.

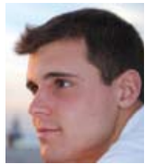
It's not science fiction. The fact is, this scenario is already being played out every day by our customers.

For many in real estate, this seems like a depersonalization of the traditional high-touch process, a retrograde step. But the truth is that augmented reality and data visualization—data experience truly—are far more personal for tenants. They're experiencing their space, where they'll do business and grow their business, with their own eyes, augmented by as much additional information as they need. Of course, successful real estate representatives will always work hard to maintain close personal relationships with their tenants and clients—this will continue to have value. However, technology will become an essential part of that relationship, and it will have consequences. Better information because it is experienced. Better informed tenants in a more open information environment that they can drive. Better decision-making because information has been given context and life. We already witness this with current customers—like any new technology, what seemed novel is now indispensable.

Augmented reality? Data visualization? Pay no attention to the buzzwords, but consider the inevitability and the impact of our evolution from impersonal information to immersive experience. Consider a future where real estate data is aggregated and processed into more than just information, but into real, visceral experience and certainty. It's no longer just Hollywood that will open people's minds. •

Mr. Graham is the President and CEO of Arcestra which he founded in 2005. Prior to founding Arcestra, Colin established and continues to participate in the operations of Arcade Architects and Designers Inc., a firm that specializes in commercial office interiors using Arcestra's platform technologies to deliver, a broad range of architectural and interiors projects for many of the largest landlords and developers in Canada.

Building Automation:
The Mobile Revolution



Korey Warzala
DGLogik, Inc.

"With the ability to access your Building Management System (BMS) on the go, facility managers and building owners have the power to make actions and adjustments from anywhere in the world regardless of whether they are sitting in the office in front of a computer or walking their dog in the park."

A new era of building automation has arrived. You can now see all your facilities in their actual environment rendered in real time with true-to-life graphics equal to gaming industry standards. Building intelligence professionals strongly agree that performance dashboards and custom visualization are top priorities to enable better analysis, well-informed decisions, and quicker action.

Today, 95 percent of mobile employees have smart phones, up from 85 percent in 2010, with 91 percent using their smart phone for work—a 26 percent rise compared to 2010.[1] With trends showing smart phone users continuing to grow exponentially, the number of applications and advancement of functionality will only continue to revolutionize the way we use these devices. Our fast lifestyle has forced mobile devices to become a primary source of data consumption and task completion. With the increasing capabilities of smart phones, the building automation industry is positioned to greatly benefit from mobile management and monitoring applications. Utilizing Building Automated Systems (BAS) visualization technology designed specifically for mobile devices allows you to be more flexible with managing your building performance. With the many mobile devices available on the market, functionality across all smart phones and tablets is a crucial component for proper utilization. With the ability to access your Building Management System (BMS) on the go, facility managers and building owners have the power to make actions and adjustments from anywhere in the world regardless of whether they are sitting in the office in front of a computer or walking their dog in the park.

Imagine having the knowledge of your previous energy consumption habits, including historical perspective, the ability to recognize problem areas immediately and the confidence in the optimal deployment and utilization of your assets in a single mobile interface. By linking all of your building automation systems into one mobile interface, you can interact with and manage any asset (lighting, HVAC, etc.) through intuitive and simple to use controls tailored to your deployment, policies and processes. Now, through BAS mobility, you can manage your assets from anywhere, at any time, ensuring a level of optimization and control simply not achievable before. With mobile BAS technology available, you can now optimize your building performance beyond any standards of the past.

Current technology is shattering the previous limitations of accessibility and real time visualization. Previously an intelligent device (such as a light switch) would only provide data to a simple spreadsheet, to be analyzed and acted on at a later time. Now, through realistic and real-time visualization, light switches, among hundreds of other devices, can be turned on, up, down or off—through simple controls at your fingertips. BAS mobility will revolutionize the way building managers operate and conserve. Described as an 'X Factor,' I expect that once exposure of this state-of-the-art technology increases, all will embrace the benefits of BAS visualization and mobile accessibility. Although few companies have implemented this level of building intelligence visualization, the functionality and performance for those that have integrated are impervious to competition.

Imagine the impact that could be made if BAS mobile applications were required to be properly utilized across all fortune 500 corporate building portfolios. According to the New York Times in 2009, scientists at a federal laboratory reported that if power plants and infrastructure were to monitor electrical use over a 20-year period, they would save $70 billion and avoid the need to build the equivalent of 30 large coal-fired plants.[2] The long-term results of conserving energy would create an astonishing impact on our carbon footprint.

Building automation product manufacturers are realizing the need for mobile capabilities and this functionality has been appearing in the media more than ever due to the public consciousness of our responsibility to be green citizens. Steve Jobs, a legendary innovator and former CEO of Apple, said "The biggest innovations of the twenty-first century will be the intersection of humanity and technology."[3] Using innovative BAS solutions to save energy for a sustainable world is a perfect example of this combination. We need to create a movement for adopting BAS Mobility to lower our energy consumption.

It is difficult for any manager, engineer, operator or executive to view spreadsheets of building systems data, attempt to analyze a pool of numbers, and extract solutions for a building automation system. If you examine any effective mobile application that is easy to understand and user friendly, you will see they all have one thing in common. They have intuitive functionality and brilliant design. Your BAS visualization should not be any different! To maximize your building performance, it is undeniably necessary to have an understandable, singular user interface with actionable buttons on your mobile device. By making all building intelligence mobile in an easily comprehensible format, you will be more efficient and successful than ever.

By adopting BAS mobility, you will transform your building performance, which is typically under-utilized and invisible, into a powerful asset. By properly linking all of your building devices into a singular user interface accessible from any web, desktop, or mobile device, you are guaranteed to cut costs and save energy. Cross platform BAS visualization will change the way we analyze our data and monitor our building intelligence. It is only a matter of time until this BAS mobility will be implemented across all major building portfolios. Keep up with the current technology in the Building Automation industry and take advantage of mobile flexibility. Take monitoring to the next level. Become better informed, more intelligent and faster reacting with your building automation solutions through mobile visualization. •

Korey Warzala is Marketing Associate at DGLogik, Inc., a technology company providing cutting-edge software for enhancing building performance by transforming building data into actionable knowledge. Recognizing the benefits of Building Automated Systems (BAS) mobility, DGLogik Inc. has created DG-Lux Mobile, a native app for iOS and Android designed to complement any DGLux installation in the building automation space. With the ability to view and interact with all dashboards on smartphones and tablets without any loss of visual fidelity or functionality, users can monitor and control systems on-the-go to optimize building efficiency.

[1] *Article: iPhone Beats Out BlackBerry for Enterprise Usage, Survey Says - 11/2011 http://www.phonedog.com/2011/11/16/iphone-beats-out-blackberry-for-enterprise-usage-survey-says/*

[2] *Article: Digital Tools Help Users Save Energy, Study Finds http://www.nytimes.com/2008/01/10/technology/10energy.html?adxnnl=1&ref=energyefficiency&adxnnlx=1327013421-9QXPh3sXxtSuwSztvXmAAg*

[3] *Walter Isaacson: Steve Jobs, Chapter Four—"Atari and India" pp. 104–107. Simon & Schuster (October 24, 2011) ISBN 1451648553#*

Transforming Real Estate Operations with Technology, Automation and Innovation

An Interview with Don Goldstein, CBRE and Jim Whalen, Boston Properties

RealcommEDGE sat down with Don Goldstein, Global CIO for CBRE, the world's largest commercial real estate services firm, and Jim Whalen, Senior Vice President and CIO for Boston Properties, one of the country's largest and most respected real estate investment trusts, to discuss how the latest technology and innovation trends are impacting these two commercial real estate giants. From smart building automation initiatives to 'BYOD' and the consumerization of technology, we asked them how the increased pace of technology adoption we are experiencing has impacted them and what strategies they have implemented to meet these challenges.

Jim Whalen, Boston Properties

Realcomm: To what extent has the C-Suite and other business leaders in your organization embraced technology, automation and innovation?

Whalen: Boston Properties has a culture of 'continuous improvement' that is driven from the top of our organization. While there are many factors that contribute to this commitment, technology is obviously a core component. In addition, awareness and adoption has only accelerated with changing demographics in the workforce and the ongoing consumerization of technology. Since the start of the latest economic cycle, we have seen some convergence of these trends combined with the goal of doing more with less and a heightened focus on operational efficiencies. The business has been even more engaged in driving and partnering on projects around technology and process. For Boston Properties, IT is a means of empowering our real estate disciplines to meet the demand for quality in our products and the services that our tenants expect.

Goldstein: Technology is more than an accommodation at CBRE, it's a corporate strategy. Our mantra is, "Yes, and by the way, how fast can we do it?" CBRE's leadership recognizes the power of technology and the importance of investment in our technology platform. Our leaders ask us daily, with tablet or smartphone in hand, "How can we leverage this device more effectively?

Don Goldstein, CBRE

What changes can I make in my organization to more effectively use our existing technology platforms?" They understand that technology and automation are key to staying competitive, but these solutions also require a substantial investment in core infrastructure and systems. CBRE leadership has answered these requests with significant budget support, funding several enterprise-wide technology projects to enable our culture of innovation.

Realcomm: Have you seen an increase in demands from your tenants for high performance work spaces? What enhanced tenant amenities are they demanding?

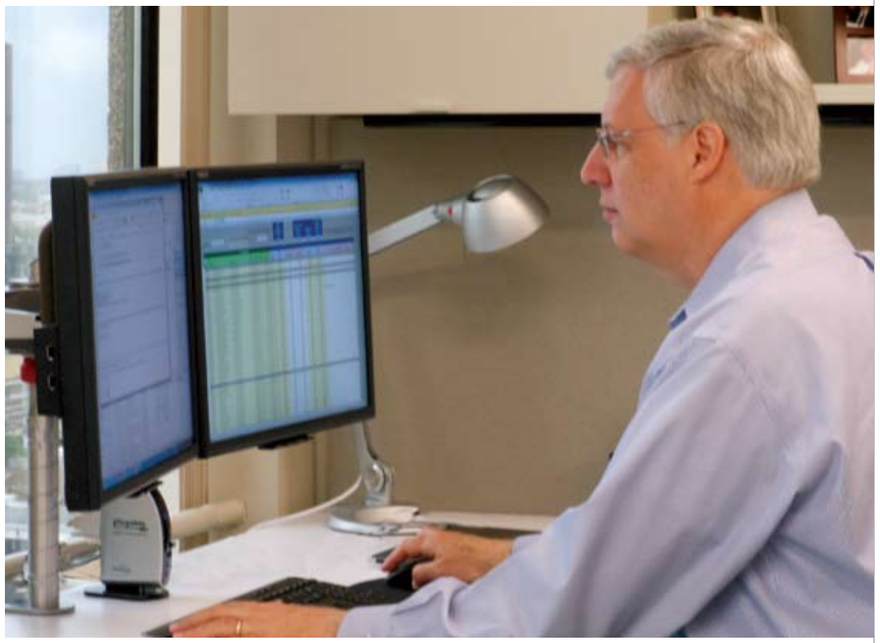
Whalen: I think that the concept of high-performance work spaces has been around for a long time but the adoption of collaborative designs facilitated by advances in technology has accelerated more recently. Many companies use their choice of location and design of work environments to improve their brand and also to attract and retain talent. So the mix of amenities is important, where the work day can sometimes be elastic. We have complemented our open and shared spaces in cafes, lobbies, outdoor seating areas, conference rooms and retail arcades with Wi-Fi. We have a number of completed and active projects for distributed antenna systems (DAS). The trend to conduct more and more work on mobile devices elevates dependencies that the macro carrier networks are being challenged to meet.

Goldstein: Our most progressive tenants are continually looking for ways to quantify the relatively high cost of maintaining office space in the face of a work force that is increasingly mobile, technologically sophisticated, and just as comfortable working from their home office, local coffee shop or airport lobby. Copper-based telecommunications are no longer sufficient, especially for tenants who rely heavily on data-driven operations and transactions. Today's knowledge workers are used to home bandwidth measured in megabits, not kilobits, and expect even more from their office workspaces—and not at the costs normally associated with traditional copper circuits. The rise of mobile devices has also sparked an incredible surge in requests for pervasive wireless data networks, something that is often challenging in buildings built before cell phones and Wi-Fi signal strength were a consideration. Today's tenants are also much more environmentally and socially conscious, focusing on carbon footprint, and community/cultural impact, as well as financial performance. Workspaces that can provide tenant-specific energy consumption information, and a means for them to adjust their own usage, are highly desirable.

Realcomm: How is your organization using data and advanced analytics (i.e., business intelligence) to improve performance?

Whalen: I prefer using the term elevated analytics over business intelligence and this is another example where improvements in technology are accelerating adoption at the right cost point. We are leveraging the Microsoft technology stack to introduce efficiencies, respond more quickly and reduce risk. We recently architected an enhanced financials data cube to improve efficiencies in reporting; analyses that required the prepping and packaging of data that sometimes took days are now aggregated and available on-demand. On the operations side, we have modeled the one million-plus transactions

that we processed on Angus Anywhere into dashboards. For example, we can measure the effectiveness of the visitor check-in process at lobby desks across buildings. We can actually drill down and see metrics on a tenant-by-tenant basis. This enables us to make smart and thoughtful adjustments that improve the tenant and visitor experience.



Goldstein: Our Asset Services (property management) business is currently in the process of developing a global data platform that will combine the capabilities of a data warehouse engine, analytics, and graphical reporting. This information, delivered via client extranet, will allow for role-based dashboards, reporting and detailed analysis of data at multiple levels within our Asset Services operational model, from global portfolio down to individual property performance. Asset Services is also hard at work in deploying a new procurement portal. This will allow us to aggregate purchasing history across thousands of properties, independent of factors such as geography and client, and enable us to present opportunities to both vendors and clients supported by detailed business intelligence.

Realcomm: We've all seen and felt the reverberation from the explosive popularity of mobile devices. How are your IT departments responding to demands from staff and clients and have you retooled to deliver your services through this media?

Whalen: Last May, we launched an opt-out program to offer an alternative to BlackBerrys. The program has been successful and we've experienced a very smooth transition. Now, devices such as iPhones and Droids represent 15 percent of our total device count and growing. We do enforce policies for PINs, encryption and the right to wipe content. From an operations standpoint, we've started using a new 'touch screen' work order solution from Angus that was launched last fall and we think it's a game changer. As touch screens become more common, we'll begin leveraging the new interface for greater efficiencies in other parts of our operations. We are also working on the first use of equipment tags using QR codes at a new 39-story building in New York, where we foresee the ability to quickly access preventive maintenance history, work orders and reference material.

Goldstein: From a staff perspective, our professionals are seldom walking around with laptops anymore—instead they're walking around with iPads and Android tablets—and very smart phones. It used to be mobile was the afterthought; now it's the only thought. In the near future, every broker, property manager, facility manager, and property operations person will be equipped with a mobile device that rivals the capabilities they had only on their desktop or laptop in the recent past. Our tech services professionals are using specially configured mobile devices in the field. Being able to work with virtually any device, anywhere, anytime, anyplace is the new strategy. The good news is CBRE leadership is asking IT, "How can we make this work in a responsible way?" Today we are working on a whole host of mobility enhancements: mobile device management, mobility for enterprise and business applications, one phone number across devices, and moving seamlessly between Wi-Fi and wireless carrier access.

Realcomm: Have you identified any new technology tools to help you better manage the financial or investment side of your businesses?

Whalen: We're using the Microsoft product stack to extract millions of records every hour out of J.D. Edwards and ARGUS Asset Management and then repackaging them into an easy-to-use warehouse and data cube. An analyst or accountant is able to go back as far as our IPO in 1997, or forecast 20 years out and see everything in one line. A great example of its power happened as we went through our business plan cycle at the end of last year. I'm sitting in my office at 5:30 p.m. on a Friday and one of our regional managers comes in and says, "I've been cubed! I just sat with my team to prep our final business plan and any question I threw at them they were able to answer right then and there!" This investment in our platform and toolset has elevated our game while at the same time reducing risk.

Goldstein: We are deploying sophisticated business intelligence tools across our core enterprise applications. They are not necessarily new tools, but their use, on a global and cross-functional scale, make them much more compelling. The key here is to put these powerful tools in the hands of more people in the organization and make them easier to use.

Realcomm: To what extent do you see your IT, Facilities and other related departments working together to implement intelligent building strategies?

Whalen: Historically we've had a close working partnership with our property operations. With a recurring capital investment plan, projects and solutions typically have an 'intelligent building' component. We have successfully leveraged our network to boost the effectiveness of these investments and continue to move along with the industry and our partners as new, viable solutions reach an acceptance point in the market. It's all in partnership and we continue to build on successes and greater awareness of capabilities and opportunities.

Goldstein: Intelligent building strategies are by their very nature extremely technology-dependent, necessitating property teams, IT and several other departments to work closely together even on the most basic implementations. Unless the client has specific objectives that call for smart building technologies, these projects must provide clients (and their portfolios) with a visible, tangible advantage without significant risk, or they will be set aside. These projects need to simultaneously leverage new technologies, establish new benchmarks in operational efficiency, demonstrate positive environmental impact, and utilize funding models that enable properties/portfolios to undertake these projects without significant financial risk. No one department is going to have that skill set—we will have to work together to bring intelligent building strategies to fruition.

Realcomm: What technologies do you see impacting real estate operations most significantly over the next five years and how do you see them changing your organization?

Whalen: I'll highlight two areas with the first being mobile. Similar to past IT transitions like client-server or the Web, we have already begun the process of repositioning, retooling and deploying applications (e.g., HTML5). Enterprises are playing catch up to the consumer side of the market where user interfaces have advanced and function-specific offerings in a SaaS model will begin to proliferate. Second would be data—both from a business and building standpoint. I see emerging approaches for the real estate version of 'big data' such as the continuous commissioning of a building where thousands of data points are harvested and modeled with increasing sophistication. I think we'll see a tipping point in the marketplace as some of these approaches become more viable in the future.

Goldstein: The three technologies I see having the biggest impact on our operations are: Mobile devices (mostly tablets and smart phones), as these devices will be the largest component in the daily operations of all property operations; Smart-building technologies, because automating and tracking all building systems (heating, lighting, energy, security) will lead to tremendous aggregate efficiencies in moderate- to large-sized portfolios, both in energy consumption as well as administrative overhead, and these devices will be our network in the 'Internet of Things'; and Business Intelligence—with all these new devices on the network, inevitably they're going to be producing more data. That data is going to need new kinds of massive databases in order to collect, organize, analyze, and then take action on it. We're going to spend more than 50 percent of our time making sense of the data produced. BI is going to be huge! Having said that, I may have a different answer for you after the 2012 Realcomm/IBcon conference, so please ask me this question again in a few months! •

Anatomy of an Intelligent Energy Efficient Building

"815 Connecticut Avenue is a testament to the advantages of a modern, open building automation system. By monitoring real time conditions and employing sophisticated algorithms, intelligent building technology delivers value and return for the owner and a reduced carbon footprint for the environment."

In December, President Obama announced nearly $4 billion in combined federal and private sector energy upgrades to buildings over the next two years. The $4 billion investment includes a $2 billion commitment, made through the issuance of a Presidential Memorandum, for energy upgrades of federal buildings using long term energy savings to pay for up-front costs (at no cost to taxpayers). In addition, 60 CEOs, mayors, university presidents, and labor leaders committed to invest nearly $2 billion of private capital into energy efficiency projects and to upgrade energy performance by a minimum of 20% by 2020 in 1.6 billion square feet of office, industrial, municipal, hospital, university, community college and school buildings. This builds on a commitment made by 14 partners at the Clinton Global Initiative America meeting in June to make energy upgrades across 300 million square feet, and to invest $500 million in private sector financing in energy efficiency projects.

815 Connecticut Avenue

Prior to the press conference to officially launch the Better Buildings Challenge, President Obama and Former President Bill Clinton took a tour of 815 Connecticut Avenue in Washington, DC. They were greeted at the property by Transwestern President and Chief Executive Officer Larry Heard, where they were led on a tour of the building and shown first-hand the energy upgrades made at the project and discussed how such upgrades positively impacted operating costs.

Gary Le Francois, a SVP Director of Engineering for Transwestern Property Management explained some of the technology and its benefits to the presidents. "The owner came to us and asked us to 'bring the building into the 21st century' and that is what we are doing. We brought in Jim Dautenhahn from DRI Development Services to run the redevelopment part of the project and Al Skodowski, Managing SVP, Director of LEED and Sustainability Services for Transwestern to manage the LEED certification. HVAC Concepts was hired to design, install and program the Tridium Building Automation System. Through the design charrette process, the team choose McQuay Turbocor Frictionless Chillers for their superior part load energy savings. The Evapco cooling towers and all chill water & condenser water pumps are equipped with Honeywell VFDs. We are micromanaging temperatures using baseboard hot water control valves every 20 feet compared to heating each entire elevation with one temperature control loop. The baseboard hot water heating is now integrated with the VAV system to prevent simultaneous heating and cooling. We keep tight control over outside makeup air with Greenheck ultra low leakage dampers and eight CO2 monitors on every floor. The chiller plant replacement alone resulted in $193,000 in energy savings the first year and moved the Energy Star rating from 37 to 82 that year."

815 Connecticut Avenue is a testament to the advantages of a modern, open building automation system. Employing Tridium Niagara AX JACEs with Distech programmable field controllers, 815 Connecticut Avenue has experienced decreased maintenance costs coupled with an increase in overall efficiency and tenant satisfaction. The use of a truly open platform allows for seamless integration of all building systems employing multiple communication protocols such as Bacnet IP, LON, and Modbus. New and legacy components, using various communication protocols, allow for building-wide energy savings strategies. These strategies are used to full effect at 815 Connecticut Avenue. Examples include:

Optimal Start/Stop—In an automation system equipped with Optimal Start and Stop, schedules are set to reflect occupied times for a given space. Optimal Start algorithms are used to calculate the minimum runtime needed from the HVAC equipment that serves that space, so that the space is comfortable by the time the first occupant arrives. This "minimum runtime" is updated by the building automation system based on current conditions in the space as well as outside the building. Optimal Stop is a similar concept that is used to calculate the minimum off time that can be tolerated from corresponding HVAC equipment before a space is unoccupied without losing comfort control. While maintaining tenant comfort, an optimal stop algorithm may shut down the compressors on a DX unit 15 minutes before unoccupied time, while allowing the fan to keep the conditioned air circulating until lease end hours. Using this method, the perfect balance between energy efficiency and tenant satisfaction is achieved.

Presidents Barack Obama and Bill Clinton visit Transwestern Building in Washington, D.C. (Official White House Photo by Pete Souza)

Supply Setpoint Reset—Setpoints such as Discharge Air Temperature, Chilled Water Supply, and Hot Water Supply can be adjusted to match real time load. If it is 90 degrees outside, a colder Chilled Water Supply temperature is used to handle the cooling load in a building, but if it is 75 degrees outside, warmer chilled water will suffice.

Unoccupied Min/Max Setpoints—During unoccupied time, space temperatures are maintained within high and low limits so that the load in the space never reaches a point where the corresponding HVAC equipment cannot restore comfort control before occupied time.

Night Flush—The Tridium program uses Enthalpy to determine when the outside conditions are right to flush the building with cooler, dryer air by starting the VFD controlled supply air fans, leaving the VFD controlled return air fans off and fully opening the relief dampers. This "once-through" flush lowers the temperature in the building without having to start a chiller. This has proven to **be a very effective energy saver.**

Demand Control Ventilation—In Demand Control Ventilation, when the outside air is undesirable for comfort control, Outside Air Dampers are kept at a minimum position as determined by the CFM requirement per person in the space they serve. The Outside Air Dampers then modulate open to maintain a CO2 setpoint in a given space. Fresh air is maintained for tenant health, but no additional energy is wasted in treating undesirable outside air. This feature alone has shown significant savings on electrical usage attributed to heating and cooling in certain buildings.

Computer Controlled Algorithms—In older buildings with pneumatic or mechanical control systems, very large temperature swings are the norm. Utilizing computer controlled algorithms, the building automation system is constantly adjusting digital and proportional outputs to maintain setpoints. Unlike older controls that needed constant calibration, a computer controlled PID can be tuned remotely and maintain itself indefinitely.

Continuous Commissioning—Since all of the data in the building is integrated back to a common platform, real time conditions can be compared to "calls" or outputs from the building automation system. Equipment run status, amperages, space temperatures, pressures, and CFM readings throughout the building can all be compared to expected parameters and alarms generated accordingly. Often an alarm will be generated before a piece of equipment reaches the point where a tenant will issue a complaint. As alarms are detected, real time alerts can be sent via email/SMS or the alarms can be routed to the 24/7 call center for immediate customer contact. For example, an air handling unit equipped with amperage CT's can be programmed with an amp draw baseline. When that baseline falls to a predetermined number, an alarm notification is dispatched to the maintenance staff. The staff can then investigate if a belt is loose, coil or filter is dirty, etc., before the point of failure.

Engineer Controlled Setpoints—Due to the flexibility of an open system, setpoint changes can come from a variety of places: wall stats, push buttons, and touchscreens. One option is to internalize all setpoints to the automation system and allow a properly trained building engineer to operate the automation system. This will often result in major savings as tenants have a tendency to overcorrect when adjusting setpoints.

Metering Systems—The Tridium BAS is connected to the main electric utility meter and records and graphs energy use in real-time, 15 minute intervals. This allows the maintenance team to see the night time Kw demand. A Transwestern "Night Audit" is then performed where the team walks the entire building and shuts down all unnecessary equipment and non-critical tenant loads. A "Night Time Baseline Kw demand" is established. When that baseline is exceeded, the maintenance team is notified and action can be taken. EMON Series 3000 electric sub meters are installed to track lighting and plug loads separately.

By monitoring real time conditions and employing these algorithms, intelligent building technology delivers value and return for the owner and a reduced carbon footprint for the environment. •

Establishing a Successful Data Governance Program

Raj Singh
Executive Director, UK & Europe
Hipercept

Executives know the importance of investing in their assets to improve their value. This year's earnings matter less than the quality of the assets that underpin their future earning potential. They also recognize that their human resources, intellectual property and brand equity are important components of their business that must be kept in prime condition in order for the company to thrive. One asset that is often overlooked is a company's data.

The information that a company has about its operations, its customers and competitors, along with the systems and processes that allow that information to flow from where it is generated to the people who need it, is not simply "plumbing." It can be a competitive advantage or disadvantage. For example, imagine two landlords with similar buildings, each with a large number of above-market leases with upcoming renewals. The landlord who can perceive this trend earlier and move faster to offer competitive early renewal terms to their tenants will fare much better than the other.

Over the past few years, there has been a steady rise in awareness of the importance of information assets and the need to develop preventative maintenance plans to keep those assets in good condition. The label that has been given to these endeavors is "Data Governance."

Goals of Data Governance

The goal of implementing a corporate Data Governance program is the same as any other corporate initiative worth undertaking, i.e., to increase net income and shareholder value. This goal is achieved through the two primary benefits of a successful DG program: 1) reduced efforts and costs related to generating and using information; and 2) increased revenues or reduced costs by preventing poor decision-making based on stale or inaccurate information.

The largest cost reductions are realized by eliminating the duplication of effort involved in maintaining multiple copies of information, and reducing the time spent interpreting and reconciling information from different sources, in the absence of agreed-upon standards.

A company's profits are driven by the quality of the decisions made by its employees. Decisions made based on inaccurate information can have a significant negative effect on the company's performance. For example, if a landlord renews a major lease at a certain rent level based on an inaccurate economic analysis, or a stale pipeline analysis, or a stale prediction of medium-term market rents, that lease will not be as profitable as if had been renewed in the presence of accurate and timely information.

These benefits are specific to Data Governance programs. Business Intelligence initiatives have other well-known benefits which are not discussed here. However, because BI solutions depend on the quality of the underlying information, the many benefits of BI cannot be achieved in the absence of a proper Data Governance program.

People, Process, Tools, & Information

All organizations are characterized by the interactions of four basic elements: people, processes, tools and information. A successful Data Governance program must address the

ways in which each of these elements influence information quality.

People are, of course, the most important part of any organization. People play two major roles when it comes to information: they are *information producers* and *information consumers*. Most people play both of these roles with respect to different information or even with respect to the same information at different times.

The information within an organization is affected by numerous business processes, some of which are performed manually, while others are automated. These processes control the way that information is: obtained, recorded, modified, validated, retrieved, protected, backed-up, aggregated, interpreted, analyzed, communicated and disposed of.

Information is both an input to and an output of almost every business process carried out in an organization. Because of this tight interdependency between information and business processes, it is impossible to impact either without impacting the other as well. It is also impossible to achieve good information quality in the absence of quality business processes.

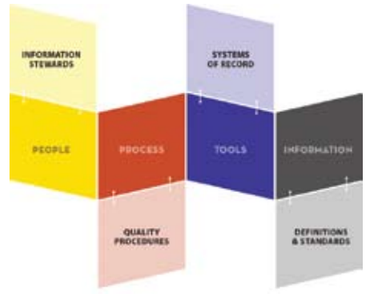
People use a wide variety of tools to carry out the many business processes listed above. There are tools that assist with obtaining and transmitting information, storing and maintaining it, analyzing it, and so on, for each of the processes listed above. Governing the way these tools are used and harnessing their power to automate and control key business processes is an important part of any DG program.

This final aspect of information within an organization is information about information. Information is only meaningful when it can be interpreted and understood within a clear context. This context is provided by "meta information," which describes where the information came from, how it was constructed, what time period it is relevant for, how certain it is, and so on.

Elements of a Data Governance Program

The core elements of a Data Governance program—information stewards, quality procedures, systems of record and standards—correspond to the four fundamental elements of organizations discussed above and address the role each of those elements plays in influencing the quality of information within an organization.

Everyone within the organization has a role to play in Data Governance, but a special role is played by the Information Stewards. These are the people who are designated as ultimately accountable for the quality of certain subsets of the organization's information. Information Stewards perform key tasks related to the DG program, including leading discussions to define information standards, designating systems of record and defining system requirements with respect to information quality; overseeing information quality audits; and championing process re-engineering projects to improve quality procedures.



Another key component of any Data Governance program is the set of procedures that ensure the consistent execution of business processes that impact information quality. The most important quality procedures control how information is obtained and recorded in the systems of record (defined below) and how the accuracy of that information is validated.

The proliferation of information systems within organizations and the increasing ease and affordability of transmitting and storing large quantities of information has created new challenges for information management. Only a few years ago, key information was housed centrally in file rooms or mainframe servers. Today there is enough disk space and processing power in an individual's desktop computer to allow every employee to maintain their own private copies of huge chunks of corporate information. Hence a key requirement of Data Governance is that a single system be chosen as the system of record for any single piece of information.

The final core component of Data Governance is the set of data standards controlling how information should be generated, interpreted and used. The standards should include, for example: standard calculations for complex metrics (e.g., NOI, FFO, GLA, etc.); standard lists of values (e.g., regions, space types, etc.); and, standard sources of external information (e.g., exchange rates).

Standards remove the uncertainty for the producers and consumers of information by creating a common reference point everyone can turn to when working with information.

Obstacles to Implementation

Implementing a Data Governance program is not easy. The first obstacle you will encounter is getting senior management to recognize the need for a DG program. Often, they will assume that looking after the company's data is just "part of the job" for the people who play a role in producing the glossy reports that land on their desks (which are usually beautiful but often not very accurate). Gaining buy-in is further challenged by the fact that some of the concepts involved can be abstract and esoteric. IT professionals spend much of their lives thinking about data, whereas outside of IT data is largely taken for granted.

Even after buy-in has been achieved, the challenges of implementing Data Governance can be daunting. As discussed above, a proper DG program will touch many parts of an organization's operations. Data owners must be identified—and often changed. Business processes may have to be tweaked or completely re-engineered. Employees who were once able to control data (or maintain their own copies of it) may find themselves having to rely on others or new tools to gain access to that data. Finally, there will almost certainly be major implications for information technology. However, as a rule, Data Governance should always simplify a company's technology platform rather than complicate it.

The fact that DG programs tend to be resource-intensive and disruptive to established processes within an organization, along with the fact that benefits often take some time to materialize, means that DG programs often start with strong senior management backing and high expectations, but eventually lose steam as the effort begins to take its toll and senior management's fleeting attention moves on to other initiatives.

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Raj Singh has spent more than ten years delivering technology solutions that enhance business performance for real estate and private equity companies. He has led successful projects in Canada, the United States, the UK and Brazil and is currently based in London, UK. Raj is a certified Project Management Professional and holds an MBA in Finance from the University of Calgary.

Next Generation Enterprise Networks

Anton Hofland, MSc
CEO
2024Sight

Securing enterprise networks has been a challenge for the IT industry for many years. Today, in addition to threats from outside, the insider threat is considered the number one problem. Technology developments and the rapid adoption of consumer technology in enterprise environments are expected—and feared—to further weaken enterprise network security.

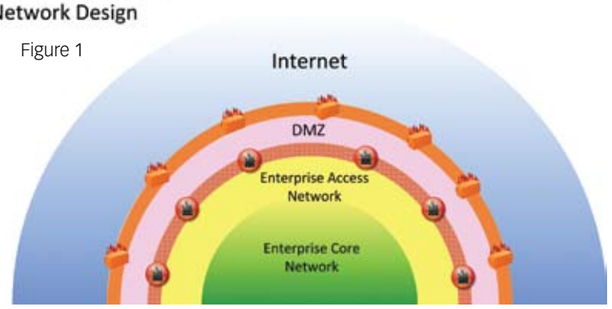
2024Sight proposes a new design principle for enterprise networks, based on a fundamental rethink of the assumptions underlying traditional design solutions. By designing, implementing and operating an enterprise network using the 'Protected Core' design principle, enterprises can surmount the challenges created by today's technology developments without putting user experience and productivity at risk.

Today's enterprise networks are designed using the so-called 'Hard Shell - Soft Core' design principle. This design principle is based on the assumption that threats to an enterprise network stem solely from the outside. Accordingly, the enterprise network can be secured by installing malware scanners, firewalls and security devices on the perimeter of the network (Hard Shell). Consequently, it is not necessary to also protect the inner parts of the enterprise network, thus leaving the application and the data open and accessible to those within the enterprise (Soft Core). A strong password policy and an internal anti-malware solution are considered to be sufficient to protect the network, the applications and the data (Figure 1).

Recent research and surveys suggest that as much as 21% of attacks on enterprises come from within (Cyber Security Watch Service 2011) and that 58% stem from outside, with a further 21% stemming from unknown sources. 2024Sight believes it is increasingly futile to even distinguish between internal and external attacks, as many breaches of security seem to have come about as a result of a combination of circumstances, both internal and external to the enterprise. In addition, we have identified change drivers at work, which will put the enterprise and its network even more at risk than they are today.

Hard Shell – Soft Core Network Design

Figure 1



Drivers for Change

The environment in which the enterprise network operates has morphed significantly in recent years. Today's enterprise network has to be able to deal with the challenge of:

1. Staff bringing their own devices (BYOD or 'Bring Your Own Device'): With the advent of cool consumer technology enterprise IT managers are increasingly required to accommodate employees bringing their privately owned consumer devices and connecting them to the enterprise network. There are many issues with BYOD such as malware management, installation and maintenance of enterprise applications on an ever increasing variety of platforms, and, most importantly, the secure storage of enterprise data on BYOD devices. In addition, there is an increased risk with BYOD devices that personal data will leak into the enterprise network.

2. Third Parties, including visitors, consultants and contractors: In this day and age of smartphones, tablets and ultra-books, every third party will be bringing along his or her own technology, expecting to have access to the internet for business or personal reasons, in addition to needing access at times to the enterprise's data and applications.

3. E-discovery: In recent years there have been a significant number of cases where e-discovered information has been used in legal proceedings. E-discovery is the process of careful analysis of any confiscated data carrier, which, in the opinion of the authorities, may hold some form of information essential to legal proceedings.

While technologies such as Network Access Control and Mobile Device Management are able to cure many of the ills caused by the above change drivers, 2024Sight thinks prevention is better than cure. It is time to abandon the 'Hard Shell—Soft Core' enterprise network design principle and to replace it with something more appropriate.

The 'Protected Core' Network Design Principle

The only way to really overcome today's security challenges facing enterprise networks is by accepting that:

1. In reality there are two distinctly separate enterprise networks: the Enterprise Core Network, connecting to the enterprise server infrastructure and holding the enterprise applications and data; and the Enterprise Access Network to which employees and third parties connect.

2. The Enterprise Access Network is as hostile a network as the internet itself.

3. All who connect to the Enterprise Access Network need to be viewed the same way; in terms of risk there is no difference between an employee and a third party.

The 'Protected Core' design principle takes this perspective into account and is based on the idea that the Enterprise Core Network is *the* network to secure and internally harden. This can be achieved through various means such as very strict control on the use of elevated rights (i.e., administrator rights), encryption, internal firewalls and network segregation, intrusion detection and prevention, and strong password policies. Last but not least, the data flows into and out of this network are to be restricted and should be fully logged.

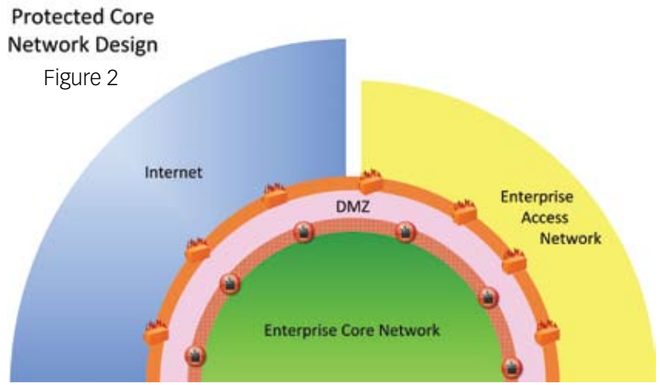
The 'Protected Core' design principle recognizes that the Enterprise Access Network is in fact just an untrusted network, no different from the internet. It is used to view enterprise data and remotely control enterprise applications, but is *not* used to transfer data or applications to any connected device. Connection to the Enterprise Core Network is only possible by using a fully encrypted, secured and logged Virtual Desktop Infrastructure (VDI), or—by establishing from an enterprise controlled and maintained device—a secure connection using Virtual Private Networking (VPN) technology.

There is a significant amount of technical detail to be specified should an enterprise decide to implement a 'Protected Core' network. With the advent of the various virtualization technologies, an enterprise network can be transformed to a 'Protected Core' design without significant impact on the user experience.

The 'Protected Core' design allows enterprises to implement networks that have security deeply embedded into them, enabling them to surmount the challenges presented to them by today's technology developments without putting user experience and productivity at risk. A 'Protected Core' network does not permit enterprise data to be stored on any device outside the core of the network, including enterprise provided laptops, desktops, tablets and smartphones (strict implementation only).

Protected Core Network Design

Figure 2



By adopting a 'Protected Core' design, the lifespan of an established Enterprise Access Network can be significantly extended, as the amount of data traversing between the Enterprise Core Network and the Enterprise Access Network is inherently minimized. Newly built Enterprise Access Networks can be leaner than is customary today in terms of bandwidth, the installed technology, space, power and cooling. A technology which is eminently suitable to implement secure, energy-efficient, cost-effective and lean enterprise networks is Passive Optical Networking (PON). •

Anton Hofland has more than 20 years' experience in IT, IT infrastructure and enterprise networking, gained mostly in the financial industry. Before establishing 2024Sight, he was the Head of IT for Arcapita Bank in Bahrain. Previously he has worked for several major financial institutions in the City of London. He has also worked in the area of telecommunications regulation and has experience in the telecommunications industry. Anton holds a M.Sc. in mathematics and computer science from Delft University, Netherlands.

Beyond Documents: Leveraging SharePoint for New Dimensions of Business Intelligence and Communication

Seeking insight into the hottest current issues in commercial real estate, RealcommEDGE approached Rob Teel, vice president of global solutions for Yardi Systems. We asked him what single word generates the greatest buzz when he interacts with clients and industry professionals. Without hesitation, Teel said, "SharePoint."

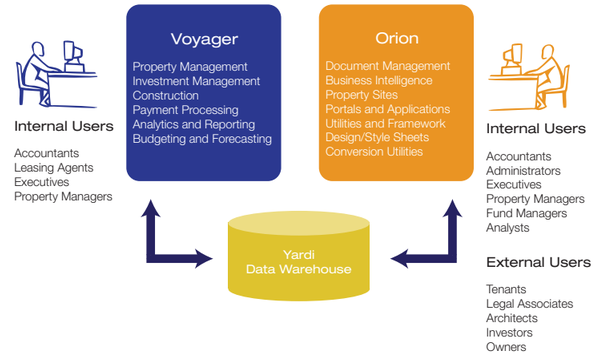
Appreciating the response requires some understanding of the history of commercial real estate's experience with Microsoft SharePoint® and various business intelligence solutions. The current popularity of SharePoint stems from the high volume of documents involved in real estate transactions. Companies initially, and successfully, used SharePoint as a way to manage documents in an organized fashion.

Paralleling the successful initial deployments of SharePoint was also a growing demand for business intelligence, followed by a trail of unsuccessful business intelligence implementations using various platforms and technologies. Part of the reason for such failures was disagreement within organizations of what business intelligence meant. The CEO might want one set of key performance indicators, the CFO another. Buy-in, creativity, and governance were largely absent.

Then, a few years ago, along came SharePoint 2010. New key features that resonated with commercial real estate professionals included business intelligence capabilities from interactive dashboards, pivot analysis and reporting, with a new twist in which reports and dashboards could be published through Web pages. This went far beyond document management and thrust SharePoint into the front end of all real estate business applications. SharePoint's adoption continued to grow over the past several years in all industries, real estate included. As reported in 2011 by ZDNet and other sources, 20,000 new users adopt SharePoint every day, translating to 7.3 million new users per year, and 80% of Fortune 500 companies use it.

Tighter, built-in integration between property management platforms and SharePoint is the next logical step. However, some significant challenges remained, such as maintaining document security and integrating with a property management system, so SharePoint's utility as a full real estate business solution wasn't fully realized. Real estate management companies grappled with getting property operating, accounting and investment data into a place from which it could be used to take advantage of all of SharePoint's new business intelligence tools. Ensuring proper security so that users would only be able to view reports and documents pertaining to their properties and assets was another challenge. In most cases, the task of building interfaces or manually synchronizing and maintaining security protocols and data integration was prohibitive in terms of both complexity and cost, so once again real estate was faced with potential failure regarding business intelligence deployment.

It would logically make sense for real estate companies to reach out to their property management software providers to help close these gaps. When Yardi Orion™ for SharePoint® was introduced in early 2012 it was no surprise to see Yardi respond to the needs of its clients and the growing SharePoint trend. What is surprising is the extent to which this new technology promises to be a game changer.



The new Orion platform is designed to integrate user and property security, entity hierarchies and attributes, and document access between SharePoint and Yardi's property management system. Even further, by using out-of-the-box data warehouse and cubes, it leverages the property management system's operational, financial and ancillary data to produce a complete picture of the business. This includes business intelligence dashboards, analytics and key performance indicators that utilize SharePoint's dashboard and reporting toolsets and enable interactive and predictive charts, graphs, and analyses.

Orion also includes portals and website tools that provide a way for dashboards and reports to be delivered to both employees and outside stakeholders in a secure fashion. Typically, only about 30% of employees in most property management organizations are licensed to use the core property management system. Orion exposes, in a secure, controlled way, enterprise-wide documents, dashboards, property abstracts, tenant contact information, etc. to the remaining 70% of the employee population.

The Orion framework is the key, enabling security to be synchronized between the property management system and SharePoint. It also allows site collections and document libraries to be auto-generated from the property and entity hierarchies in the property management system. The result is that the real estate manager is able to overcome the interfacing problem with a turnkey solution, resulting in ensured security, efficient sharing of data between systems, and a remarkably faster SharePoint deployment.

This ability to synchronize represents a safe, efficient way to share documents and vital business information with authorized users both inside and outside a company. Documents can be loaded in bulk or individually into SharePoint libraries and securely accessed either from the property management system or from SharePoint. Packages of executed lease documents can be scanned and automatically routed to the correct folder while attaching the appropriate meta data tags from property management data. New document library folders can be automatically created when new leases, properties, jobs, contacts and other items are added. Employee portals can provide access for human resources documents and such corporate communications vehicles as blogs, news sites and property sites. Marketing and service request portals with out-of-the-box functionality can also be embedded in SharePoint, allowing users to easily control their use, content and access.

Following Yardi's lead, it's reasonable to expect other property management providers to create their own frameworks that will integrate SharePoint with their core business systems. If one accepts SharePoint as a relatively new best practice, then it seems clear that part of that practice would involve enabling SharePoint to interoperate with property management, investment management and accounting systems throughout the industry. There's a compelling business case for any real estate management system that can easily leverage SharePoint's capabilities in such a fashion.

"There are so many things you can do in SharePoint, but there's no easy way to put one wrapper around it all. That's why a lot of SharePoint implementations fail, just as BI implementations have a high failure rate, and that's what Yardi is hoping to remedy for our clients," said Teel. "We aim to create new best practices by providing an off-the-shelf BI and document management framework with a familiar look and feel and which encompasses all necessary degrees of security and control. A company then has the means to explore limitless ways to extend SharePoint to internal and external users with new forums, workflows, portals and other collaborations." •

IN THE TRENCHES

Chris Saah
President
TecFac

The power of collaboration can be a great tool in solving the sticky technology issues that we all struggle with. Featured on this page are two brief interviews conducted by Chris Saah, President of TecFac—brief, informal, 'water cooler' conversations with two of the brightest, most innovative technology professionals in our industry addressing problems that many of us are facing today.

***Chris Saah** is President of TecFac, which provides IT support services to Transwestern and its clients throughout the US. Follow Chris at www.twitter.com/csaahcio.*

***Justin Segal** is Chief Operating Officer for Boxer Properties, a privately-held real estate company based in Houston.*

Saah: When we've talked about IT in the commercial real estate space, you shared valuable insights about the challenges of developing and delivering solutions in our industry. I'd like to start by asking you to share some of your observations. What do you think has changed over the past three years or so?

Segal: Our industry went into hibernation for a few years and many of us had to put IT projects on the back burner. In the meantime, the technology industry has generally kept moving forward, delivering many valuable tools at surprisingly low costs. Additionally, technology adoption among end users has really exploded, with everyone now using mobile devices, choosing and installing applications that do what they need, and expecting immediate results.

Saah: Technology has truly become main stream just in the past two years. My mother, who struggled for years with accessing email and the internet from a PC, is now a daily iPad user.

Segal: Exactly. It's like wearing blue jeans—totally mainstream. So, the issue is no longer development tools or getting the end users to adopt technology. And now that money has begun to flow again, budget is no longer a dry well. We have committed significant dollars to development, as I know many others have. Furthermore, motivation is no longer an issue because many things that were an opportunity just two years ago are now an imperative.

Saah: If tools are plentiful, leadership sees innovation as an imperative, projects are funded, and users are adopting technology, what are the obstacles to introducing real innovation into the industry?

Segal: It's in the area of change management and internal adoption. I think the CIO cannot just develop solutions and present them. We must introduce and manage change in a sophisticated way. If we don't understand, anticipate, and manage reactions to change, our projects could be fraught with problems and we may never really deliver the solutions we are tasked with providing.

Saah: Do you think our challenges are different than other industries?

Segal: Everyone faces similar challenges, but CRE has unique obstacles. It is an older industry which can rely on processes that existed 20-30 years ago. Because margins are tighter, physical assets understandably get first access to capital, so IT tends to be resource-constrained. Bringing about change and new solutions can be harder to do. You must find time for the right resources to weigh in during analysis, development, testing and training, in addition to their regular operating workload. In a company like Boxer Property , where we have built a model doing everything in-house, you have people with multiple roles and systems that must be tightly integrated for efficiency.

Saah: Great observations. Regarding specific products you've delivered, you mentioned your Sharepoint deployment was a huge success. Can you give us details?

Segal: This past year we've upgraded Yardi and created an integrated Sharepoint environment, which we use as a presentation layer for delivering BI. We've created a power pivot gallery, used as a prototyping tool for more integrated reporting. We've created what we call One Page for properties, tenants, and vendors. We pull data from different systems and databases, displaying all pertinent information in one place. These tools can be used to create ad hoc portfolios. For example, we can look at properties managed by a

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***Jon Levi** is Chief Technology Officer for Cassidy Turley, a leading commercial real estate services provider in the U.S.*

Saah: Jon, you are a man who has been passing himself at the airport the past few years. You've seen your user base grow from 350 to 2,800 in four years. How are things going? Do you see light at the end of the tunnel yet?

Levi: My wife just asked me the same question. I think by the end of 2012 things might start to get back to some degree of normal. I've just hired a second VP of IT to oversee our service and support operation, which is a big help, and our enterprise CRM roll out should be well under way by then, so I am optimistic that I will be enjoying a few more dinners at home.

Saah: Well, I think you can offer a unique perspective on managing technology given all of the mergers and affiliations you have been through in a relatively short period of time. Tell us about your IT team. How many people do you have now?

Levi: We have 53 people total. We have 9 at our call center in St. Louis and another 10 around the country as a kind of virtual call center. We have 22 in our engineering/network/infrastructure team and another five in our onboarding and compliance team. We do use contractors for some of our onsite property work and technology refreshes. Actually, the ratio of IT staff to end-users has stayed pretty much the same.

Saah: Tell us more about your onboarding team.

Levi: They handle new property assignments and ensure we stay compliant with SAS 70 and SOC1. They provision hardware, set up network accounts, email, and handle connectivity. In some cases they go on site at the time we take over, and generally ensure that we have a smooth transition and that our owner's interests are protected.

Saah: No developers?

Levi: Not really. We have a few SharePoint people in our Property Management team and we'll be adding developers with PeopleSoft PeopleTools in IT this year to help build and maintain interfaces between the CRM, ERP and other feeder systems.

Saah: So, what are some of the key platforms you are using?

Levi: We are about to deploy PeopleSoft Financials in July, which we will use for core financials, contracts and project costing and in October we'll roll out their payroll, benefits, and time and labor modules. We upgraded to Exchange 2010 last year and enabled Active Sync to accommodate Apple devices; we are deploying a cloud-based mobile device management solution to handle the BOYD reality. Our users have loved that, particularly with the proliferation of iPads when CoStar rolled out CoStarGO and gave away thousands of iPads. We rolled out our Intranet eCommunity site on SharePoint 2010. We also completed the upgrade to Yardi 6 for Property Management accounting and now use Yardi for all Property Management lease administration.

Saah: Earlier you mentioned a CRM roll out. What are you deploying?

Levi: Oracle CRM On Demand and Marketing On Demand. While we are using the on-premise version of PeopleSoft, we are deploying the hosted solution for CRM. It will allow our affiliated companies to access the solution off-network and they can pay for their own subscriptions. Some CRE overlays have been developed by third parties for the product, so we are not starting from scratch.

Saah: And this is enterprise wide?

Levi: Yes.

Saah: Wow. No small feat! I have spoken to numerous folks from organizations big and small, where this has been a major challenge. I remember one international player saying it took 18 months just to get one division of the company on the same page as far as a CRM solution. Are you replacing an existing platform?

Levi: Actually, multiple platforms. We have many people using REApplications, REA and SalesLogix, as well as multiple instances of ACT. Oracle will replace all of these with a highly scalable, integrated, enterprise-wide solution. We have about 100,000 contacts and 40,000 accounts that we'll be importing.

Saah: And how are you encouraging adoption?

Levi: Easy, we are simply no longer supporting the siloed solutions. But more importantly, the pipeline in the CRM feeds the closed deal revenue recognition, billing and A/R. Sure, some people will keep deals off the radar screen until they are fairly sure, but they have to be in this system to get paid. We'll track

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Designing Organization-Centric Smart Buildings

Dr. Hari Gunasingham
CEO
Sigma Sustainability Institute

It is widely acknowledged that the modern world is facing unprecedented change. There are at least six forces that are driving this change: Rapid population growth; globalization; technology innovation; the widespread digitization of information; an aging population; and the depletion of natural resources. These are global forces that are affecting every aspect of human endeavour and rapidly shaping the way we live, work and play.

From a business perspective, these global forces drive change by impacting the external environment in which organizations work. In this context, the notion of sustainability is not just about energy and resource conservation, but about how organizations are able to adapt and align to rapid external change across a much broader front. This means changing organizational structures, systems, business models and processes.

One significant consequence is that work is rapidly being both pushed (by the organization) and pulled (by the employee) beyond the confines of the office to create a connected virtual and mobile work environment. Hence, work is moving to wherever workers (not just employees, but external contractors and consultants), expertise and capabilities may be. In this new order, more than location, communications is fast becoming the mediator of work.

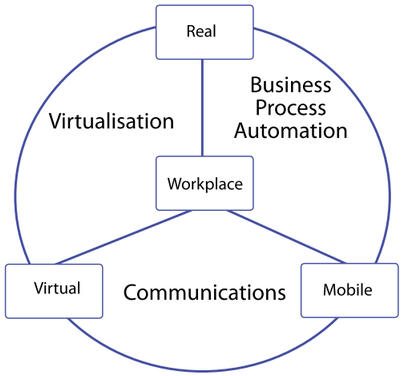

Figure 1.1 The workplace of the future will encompass the physical, virtual and mobile work environment

Next generation organizations will need to automate their business processes across multiple locations and communications channels. Their employees, contractors and consultants could work autonomously- anytime, anywhere, but will have a unified business purpose and standardized work practices. Another consequence is that work will become virtualized—on the cloud.

Amazon.com embodies this model of a next generation organization. Its automated business processes work across its cloud platform, mobile applications and physical warehouses enabling huge efficiencies in marketing, customer fulfilment and inventory management. In contrast, Borders exemplifies the old-world, location-driven organization.

Business Process-Driven Real-Estate

Jack Welch, former CEO of GE, famously remarked, "When the rate of change on the outside is greater than the rate of change on the inside, then the end is near." Amazon vs. Borders is a good example of where this scenario has played out.

Is this message relevant to the real estate sector? If so, what are the changes to the external environment that could challenge conventional real estate models?

The mutable workplace is one area of change that demands new models of development and management. Going hand in hand with this, it may no longer be sufficient for developers and property operators to be mere providers of space. Rather, they may need to go one step further- to become a provider of services to tenants. Both of these models require a paradigm shift in thinking.

As shown in Table 1, the idea of a business process-driven real estate business is not that new or radical. Indeed, it has been around for many decades. The idea is centered on having a clear and single minded view of the customer

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Dr. Hari Gunasingham is founder of Sigma Sustainability Institute, headquartered in Singapore, which provides consulting, program management and education services to private sector and government organizations in the area of sustainability and performance management. He is also CEO of Eutech Cybernetic, the developer of the iViva.works software platform for smart buildings and workplace management.

Utilizing the Commissioning Process

James K. Vallort
Vice President
Environmental
Systems Design, Inc.

"Commissioning is a worthwhile investment in ensuring a high-performance system that matches the Design Intent at system turnover, beyond turnover and under predicted modes of operation."

The purpose of Commissioning is to verify that the Design Intent of various systems is met in the field. There are numerous benefits for both the owner and the occupants of commercial real estate. First, the owner gets assurance that the systems purchased are actually operating as intended. If the systems do not operate as intended, the poorer performance can end up costing the owner in the long run. Second, the Commissioning Authority acts as an owner's advocate from the start of the design process, ensuring that the Owner's Project Requirements (OPR) are met by the designer before anything is finalized. Any corrections made in the design phase are significantly cheaper than corrections made further into the construction phases. Third, commissioning tests equipment in simulated 'worst-case' and 'what if scenarios' (e.g., power failure, alarm conditions, device failure), which gives the owner full assurance that should a critical condition occur, the systems will react appropriately. Finally, commissioning also involves ensuring the systems continue to perform by setting up Operation and Maintenance documentation, operator training programs or future re-commissioning activities. The occupants benefit from having systems that perform reliably, both during normal operation or in a critical condition.

The Commissioning Process

Successful commissioning is achieved by beginning in the design phase. The Owner's Project Requirements are documented, and the Commissioning Authority reviews the design intent for compliance. As the Design Intent takes shape, the Commissioning Authority develops Functional Performance Tests in collaboration with the designers and installers. These tests will validate that the Design Intent is being met in the field through a series of systematic steps with quantifiable results. After equipment startup/pre-functional tests, the Functional Performance Tests are carried out by the contractor and witnessed by the Commissioning Authority. It is recommended that the owner also witness the Functional Performance Tests as a means to provide greater operational understanding of the systems. Any issues with field performance not meeting design intent are documented, tracked, and re-tested upon resolution. After validating the installed system, the Commissioning Authority can help create an ongoing plan to ensure the system performs well into the future. The ongoing commissioning efforts ensure the systems to not degrade in performance over time.

Applications

Commissioning has a wide variety of applications. Typically, building commissioning involves energy-consuming systems like heating, cooling and lighting, due to the popularity of some building certification program requirements. However, commissioning can be applied to any system that has a Design Intent or Owner's Requirement that can be verified in the field, or any system that would incur a significant cost through unreliable performance. For example, multimedia/communication/technology systems or mission critical control sequences are often commissioned now and the percentage is increasing with better understanding of the commissioning process and benefits. Depending on how possible it is that failure or under-performance of these systems could affect the owner, the results can range from financial losses to life-threatening situations. Commissioning is a worthwhile investment in ensuring a high-performance system that matches the Design Intent at system turnover, beyond turnover and under predicted modes of operation.

Commissioning takes place at different levels—the Unit Level (one piece of equipment), Sub-System Level (many pieces of related equipment interacting), to the Integrated System Level (multiple sub-systems interacting). Sophisticated control systems monitor and drive the operation of various components and systems. Each separate sub-system is often installed by different people, and therefore it is vital to ensure the integrated system as a whole functions in a way that optimizes resources while delivering high performance. The commissioning agent often performs the tests described as 'real life' or 'when the rubber hits the road' tests. Significant cost savings are often realized from the proper operation of system-level controls across multiple systems and platforms for a fully integrated building.

Conclusion

In conclusion, the commissioning of systems, regardless of type, can be very beneficial to both the owner and the occupant. Commissioning provides assurance that the systems will meet the owner's requirements during normal operation and in critical conditions. It applies to a wide variety of system types (from technology systems to large energy-consuming systems), and can be executed from a component-level to an integrated-system level. Commissioning provides added benefits of cost savings from optimized system operation, increased system reliability and increased productivity of the system users. •

James Vallort, CBCP, CSDP, CEM, leads the Commissioning, Energy and Eco Services Group for ESD. He is a Certified Building Commissioning Professional, a Certified Energy Manager, a Certified Sustainable Development Professional, and a LEED Accredited Professional. He received a degree in Mechanical Engineering from Bradley University.

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Begin Implementing a Data Governance Program Today

This short summary has introduced the benefits and key components of a successful Data Governance program. A comprehensive step-by-step approach to implementing Data Governance is contained in the full executive briefing, which is available at: *www.hipercept.com/thought-leadership.htm.*

Conclusion

In the modern information economy, executives understand that they drive profit by making decisions faster and better than their

competition. The ability to make good decisions is dependent upon the state of a company's information assets. Data Governance is to the information worker what industrial design is to the factory worker.

Getting started with DG can seem a daunting task, but it does not need to be. Leveraging the right approach is critical. Steps cannot be skipped, but you can move through them quickly if senior management support is secured early in the process.

Over the next few years, as companies begin to think of their information assets in the same way they currently think about their financial assets, physical assets and human assets, Data Governance will become a part of every manager's vocabulary. As with previous advances in management theory, those companies that grasp it first will outperform their competitors. •

The Rise of Distributed Antenna Systems

Thomas K. Crotty
President/CEO of Wireless Information Networks, LLC (WIN)

"When considering the funding and deployment of an in-building DAS, make certain that the vendor you choose is well versed and experienced in not only the radio frequency engineering aspects of this technology, but equally important, that they have a working knowledge of the current business model environment characteristic of the DAS marketplace today."

Cellular technology has gone from its infancy in the 1970s to the cornerstone of communications today in 2012. User demand for bandwidth, content and services available via your mobile device is expanding at a staggering and exciting pace. However, the connectivity issues within your property or leased space will only get better or worse depending on how you address it today.

The ability to stay wirelessly connected represents an important requirement in today's continuously expanding business environment. Ubiquitous access anytime, anywhere to mobile devices has become the lifeline of any organization and the economic impact of commercial globalization has made this ubiquitous connectivity essential.

Today's workforce needs to be reachable at all times in order to cultivate and maintain excellent relationships with clients. Access to a strong, usable cellular signal in today's smartphone network has become a critical tool in real time client communications to foster these relationships. Non-existent in-building cellular coverage, especially in business districts, warehouses, manufacturing facilities and high-rise buildings, means that many important calls will go unattended or unanswered, and ultimately have an adverse effect on your tenant relationships, due to their inability to adequately service their clients within the leased space in your building.

Given the multi-media aspects of applications now in the hands of business professionals, the bandwidth intensity of all users will continue to expand. As a result, if prospective tenants in a multi-tenant commercial office building do not have the capability to access a cost-effectively deployed Distributed Antenna System (DAS) to fully utilize cellular coverage within their leased space, these tenants will begin to look elsewhere.

4G and the Spectrum

With the advent of a pervasively deployed 4G technology designed to address the bandwidth-specific needs of all users, the carriers' financial model has shifted, from one of units (devices) and minutes, to one of content and services, based on the users' access to expanded bandwidth. Unlimited data plans will be a thing of the past.

As a result of this shift, the funding associated with the deployment of a traditional DAS infrastructure within a building has the potential for multiple facets based on size of property (RSF), tenant roster, annual traffic, geography, etc. There may be an opportunity to obtain carrier subsidy for your DAS infrastructure depending on these factors. So, be sure to investigate the capability of your vendor to pursue potential capital funding on behalf of your property and your tenants.

This shift has also changed the way carriers structure their macro networks (the cellular signal outside of your building) and is significantly increasing the demand for Distributed Antenna Systems within multi-tenant high rise facilities, due to the fact that we have all come to expect the same throughput and access inside a building as we do outside of the property!

In addition, cellular carriers will continue to offset the demand for their macro networks, through the deployment of in-building DAS systems within multi-tenant commercial and mixed use structures. Distributed Antenna Systems are designed to essentially create a cellular infrastructure within a building so cellular devices (smartphones, tablets, data cards) are not constantly searching for the strongest signal to transmit voice or data traffic, which may exist outside of the building. Many options are available today, but DAS networks must be deployed with the tenants', owners', managers', and carriers' best interests in mind. Building Owners, Property Managers, Tenants, and CIOs will continue to be pressured to solve coverage issues within a building, and with the on-going licensed spectrum shortage the United States is facing, these issues will not be going away anytime soon. In-building coverage has now become a requirement infrastructure amenity for owners, managers and their tenants.

The Future of DAS—Who Pays? Who Owns?

The perceived eventual inability of America's cellular/wireless infrastructure to handle the continuous and impending data demand of its users has risen to the forefront of concerns by the cellular providers, the FCC and the U.S. enterprise sector.

As applications and devices continue to expand at breakneck speed, the ability to offload traffic from the cellular provider's networks is the key to uninterrupted and available connectivity for both consumers and businesses. A Distributed Antenna System has proven to be a significant way of offloading data traffic from the carrier's macro network, thus alleviating a substantial portion of this inevitable problem. While the early years of this technology saw building tenants expending large amounts of capital to correct signaling issues within their leased space, more products and solutions are now available and the shift in focus is currently who will be paying for these deployments and who will own and maintain them.

While there are several options currently present in the multi-tenant and mixed use markets, it is clear that today there are basically three main options which exist and will continue to evolve as the mobile device marketplace and its associated indoor and outdoor network infrastructures perpetually expand over the next five to ten years:

Option #1: Building owners and managers have the option of capitalizing and owning their own DAS infrastructure and attempting to recoup a portion of these costs from the four major cellular providers. This process can be lengthy and may involve significant staff resources.

Option #2: Building owners and managers could look to a single carrier to capitalize and own the DAS infrastructure, with a contractual responsibility to ensure that eventually all four major cellular providers (at a minimum) will have their respective cellular signals integrated into the initial (or anchor) carrier's DAS infrastructure.

Option #3: Building owners and managers could utilize one of a number of third-party integrators who provide capitalization and ownership of the DAS infrastructure independent of the cellular carriers, often with a guarantee to provide the integration of all major carrier signals within a defined timeframe.

The selection of a specific business model for each owner, manager and their tenants will depend on a multitude of variables. When considering the funding and deployment of an in-building DAS, make certain that the vendor you choose is well versed and experienced in not only the radio frequency engineering aspects of this technology, but equally important, that they have a working knowledge of the current business model environment characteristic of the DAS marketplace today. •

Thomas K. Crotty is President and CEO of Wireless Information Networks, LLC (WIN), an RF (radio frequency) engineering, design, deployment and management company. For more information, visit www.indoorcellular.com.

Niagara Framework and Community are Accelerating Smart Building Adoption

Marc Petock
Vice President,
Global Marketing &
Communications
Tridium

"Perhaps no other technology has had as profound an impact on smart building solutions as the acceptance of the open concept and the Internet."

There is an old African proverb, "It takes a village to raise a child" that I believe sums up the adoption of smart building technology today and how the Niagara Framework, its ecosystem and community of manufacturers, system integrators, contractors, consultants, end users, etc. are raising the adoption of smart buildings.

Back in 1995, we saw several major market transformations driving the marketplace. First, the concept of "open" standards began to surface. Then there was a major push to integrate multiple device standards and legacy systems into a single building automation solution and merge multi-vendor systems together regardless of manufacturer, type of system, type of protocol or network. Then there was the emergence of the Internet so we started seeing that automation solutions should seamlessly connect to the Internet through industry-standard browser interfaces.

To address these market opportunities, Tridium created the Niagara Framework. Previously, these markets had been characterized by highly proprietary offerings with limited ability to interoperate, long development cycles, complex client software for system management, and feature sets seen in business and Internet applications. We brought to this space a comprehensive software platform that encapsulated the core functionality needed to create Internet-enabled building automation systems, energy management applications, access control systems, and smart building solutions. It also enabled others to rapidly develop and launch new products with new features based on the open philosophy.

As expected, when we first preached the "value of open versus proprietary" there were many naysayers and hardliners within the industry; however, an ecosystem and community began to emerge. As time passed, the industry started seeing the business value that was inherent with this concept, the technology, and the community that surrounded it. Perhaps no other technology has had as profound an impact on smart building solutions as the acceptance of the open concept and the Internet. The success of the Internet is largely driven by open protocols and standards that enable all sorts of applications and hardware to interact. The same principles of openness that have made the Internet a thriving ecosystem are also accelerating the adoption of smart buildings.

The Niagara Community is helping to drive smart building adoption and shape its future. The power and reach of this community has grown greatly over the last few years. Today 60 partners have adopted this technology and are using it in their products, applications and services; they are offering a variety of smart building solutions in the areas of environmental systems, energy management, lighting, security, irrigation, digital signage, video, remote monitoring, analytics and fire/safety.

It has become clear that smart building adoption is all about being a community, a village and interacting with each other. Our industry and the technology that drives it continue to converge rapidly, evolving the ecosystem that is reshaping the way we transact, manage and control buildings. The global communities who have embraced it continue to have a significant impact in smart buildings.

We are creating better buildings—ones that are smarter, use less energy, are more efficient, have lower operating costs, are safer and contribute to a sustainable environment. •

Marc leads global marketing, brand management, public relations and communications for Tridium. Prior to joining Tridium, Marc served as Vice President at the Patrick Marketing Group where he was in charge of marketing and communication initiatives for a variety of global technology companies.

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The Final Frontier of Real Estate Process Automation: **Budgeting & Forecasting**

By Robert Adams
Managing Partner
FUEL Applications, LLC

"When we look at the tools that are utilized today by real estate companies, Excel is still the most prominent software used in the budget and forecasting process."

Budgeting and forecasting is a pervasive, mission critical business process that is highly localized, manually intensive, and lacks administrative controls. It is a business function that is grossly inefficient since it requires the constant participation of geographically dispersed asset managers and their constituents. The bad news is that budgeting and forecasting has been a notoriously difficult process to tame. The good news is that industry demand has resulted in the emergence of several next generation solutions that promise to get the process under control once and for all.

Across the industry, commercial real estate companies large and small are moving from a once a year process to a quarterly - and in some cases a monthly - process. Continuous or 'on-demand' forecasting is now a goal for many organizations. Some of this change is being driven by the executives' desire for fresher results to manage the assets and some of this change is being pushed down by certain large institutional owners that are mandating more frequent forecasts in their management contracts.

If you ask the typical CFO about their company's budget and forecasting process, they will mostly likely say it is a major pain point for them. The Beyond Budgeting Round Table, an industry research organization, estimates that the average corporation spends four months and 20-30% of senior executive and financial manager time on the budgeting process. Commercial real estate companies tend to be at the higher end of that range given the sheer number of entities that must be handled.

Common complaints heard from commercial real estate companies include:

- Budgets cost too much to prepare.
- Budgets take too long to prepare (often making them out of date when published).
- The budgeting process leads to gaming where managers try to negotiate low targets to reach maximum bonuses.
- The budget process does not add value in managing the business.

For a company wanting to make the leap from a once a year process to a quarterly or rolling forecast, the trusty old Excel budget template that many companies still use isn't going to get you there. You can't just decide to do your current process more frequently and expect to achieve success (multiply the bullet points above times the frequency to see what will happen under that scenario).

The key to taking a process and doing it more frequently is integrating it and standardizing it. For most companies, that means automating the flow of new lease data from their accounting systems into their forecasts so that they can see the impact of new leasing and new vacancies in near real time. When done correctly, this approach leverages the data governance applied to the lease abstract process and adds accuracy to the revenue modeling portion of a forecast.

There was a time that meant using the accounting system's budget module or building your own solution. Not anymore.

What are the tools?

When we look at the tools that are utilized today by real estate companies, Excel is still the most prominent software used in the budget and forecasting process. Excel is either used as part of the process (supporting schedules) or, in many cases, for the entire process. Companies are drawn to the ease of use and seemingly low cost of this solution. The downside is an extremely manual process that is heavily decentralized and lacks transparency. While the software is inexpensive (who doesn't already own Excel?) there is a large opportunity cost with regard to people's time.

The available commercial software solutions fall into three categories: Specialized, DCF based, and accounting system based. Accounting systems like Yardi, MRI and JD Edwards all have budgeting functionality that can be used as an extension of the primary property management system. In most cases, this is an additional piece that needs to be purchased and implemented. The principal strength that these products have is that they have ready access to your actual lease and expense data. The issue many larger real estate companies find is that they run more than one accounting system and they want a standard process regardless of accounting system utilized.

Companies that link the forecasting process with their valuations process will often forecast using DCF software. The DCF Based products include Argus DCF, Argus Enterprise, Dyna, and Cougar. Cougar, for example, has a specialty budget and forecast module that can feed its portfolio modeling solution.

There are several products that specialize in budget and forecasting tools for commercial real estate companies. Kardin, Realogic, and FUEL for Budgeting & Forecasting are examples of standalone, integrated budgeting and forecasting tools. Each of these products can accept lease and expense data from one or more accounting systems. This allows companies to standardize their budget and forecasting process regardless of which accounting system the data was sourced from. Certain applications must be installed on each user's computer and require manual importing of the data for the assets that the user is going to budget. Others are web-based systems that have (among other features) automated data feeds from the source accounting systems.

As the focus on this business process grows, so will the functionality and sophistication of the software solutions. There are new forecasting modules from Yardi and MRI on the horizon, and newer players like Realogic and FUEL Applications promise to deliver value propositions similar to those of automated payables, automated leasing, etc. If you haven't done so in a while, it may be time to take a look at what's out there. •

Robert Adams is a founder and managing partner of FUEL Applications, LLC. Mr. Adams has over 15 years of experience serving as an IT executive for tier-one commercial real estate companies. As Vice President of Information Systems for AMB, he led numerous business process and technology initiatives in support of globalization strategy. Mr. Adams is an expert in corporate IT management, ERP, data management, leasing, budgeting & forecasting, and software development.

continued from page 24

being served by the real estate facility and focusing on delivering value to this customer. The hard properties and facilities are integral to the operator's business processes and, as such, form follows "business" function.

Business Model	Business Operator	Customer
Hotel	Ritz Carlton, Novotel	Guest
Service Apartment	Ascot	Guest
Service Office	Regus	Corporate Users
Shopping Mall	CapitaMall, Westfield	Shopper, Tenant
Retail Franchise	Seven Eleven, IKEA	Customer, Franchisee
Olympic Games	Olympic Committee	Athletes, Spectator
Airport	Airport Authority	Passenger, Airline
Hospital	Health Network	Patient
University	Insead	Student, Staff
City	Dubai Festival City	Community

Table 1. Business Process-Driven Real Estate Businesses

It is interesting to note that many of the business operators shown in the table are global players. Significantly, this comes from the ability to automate processes across their global locations to deliver a unique but consistent customer experience, which is becoming a centerpiece of their business strategy.

What is Business Process Automation?

Business process automation is the automation of an organization's business processes using a technology platform in order to improve efficiency and lower cost. Business process automation is especially effective for processes for which the following factors apply:

- clearly structured and predictable
- repetitive
- frequently executed

Business process automation increases agility, as it is easier to adapt processes to organizational business changes. Further, business process automation enables the central management and standardization of processes. This improves consistency and operational efficiency, especially when managing across global locations. It also engenders a number of other benefits such as transparency, simplicity and risk management.

Organization-Centric Smart Buildings

Figure 3.1 shows the building-centric view of smart buildings. The smart elements of the building are embedded in the building electro-mechanical services to provide automated, feedback control of the building environment. This view is consistent with the conventional definition of smart building as articulated by Frost and Sullivan:

"Smart buildings are responsive structures that can adapt, change and mime the external and internal climate and conditions…."

—Frost and Sullivan 2011

Figure 3.1 Smart Buildings –Building-Centric View: Dynamically responds and adapts to external and internal conditions (e.g., climate)

Note that the building electro-mechanical systems and services are implemented to last for 7 to 15 years, and over this time they operate pretty much the same way as the day they were commissioned.

In contrast, the organization-centric model of the smart building shown in Figure 3.2 focuses on supporting the core business processes of the occupants. On top of the electro-mechanical services are the business process and unified communications layers, which can also be described as the business and user mediation layers respectively. These layers change within much shorter time frames, reflecting their ability to be responsive to changing organizational needs and practices.

Figure 3.2 Smart Buildings—The Emerging, Organization-Centric Paradigm: Responds and adapts to the occupants' core business processes

"Energy models predict energy use, and building systems are responsible for the energy use in buildings; these systems typically do not change much after commissioning. A changing energy model is caused most often by a change in business practices. Live energy models must be "mappable" to changing occupant business practices."

—NREL, USA 2011

This statement from the National Research and Engineering Laboratory clearly describes the benefit of an organization-centric smart building, which is the ability to adapt to the occupant's business processes; something that the building electro-mechanical systems cannot achieve on their own.

A simple example of a business process driven smart building application is meeting room booking. Here, the business process is the "Room Booking Process", which can then modify the room electro-mechanical settings (e.g., for temperature, lighting and access control).

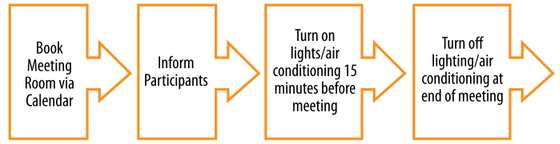


Figure 3.3 Simple Meeting Room Booking Process

It is possible to add intelligence to this process. For example, it could include a step to determine the temperature setting depending on the external temperature and the number of participants. The process could also check the carbon dioxide levels and alter fresh air intake accordingly.

Within a facility there would be a multiplicity of business processes with varying degrees of complexity; for example, activity-based management, space management, event management, enterprise energy management, and security and incident management. Each of these processes is driven by the organization's specific business needs.

Bringing Together Management Silos in Smart Buildings

So far we have considered the integration and alignment of business processes and electro-mechanical systems. But there is a missing piece: A framework for business process automation can also integrate the facility management systems and processes to create a "smart building operating model". Conventionally, facility management has existed as a disconnected silo.

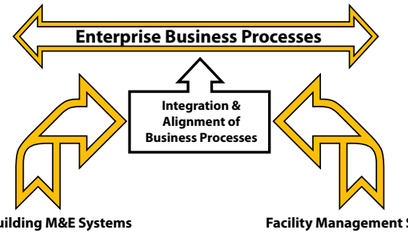


Figure 3.4 Existing Silos of Management

As shown in Figure 3.4, the benefit is not only that the building operations and maintenance are unified, but both are now aligned and integrated with the enterprise business processes of the building occupants. In the case of an airport the enterprise business processes would include the passenger arrival and departure processes; in a hospital, it would be the patient care processes; and in the case of a bank headquarters, it would be the bank's operational processes.

Through this integrated model, the building and facility management processes and services become truly customer focused in that they are now able to impact the business of the building occupants and their ability to deliver to their own customers. In the case of the airport, this would be the passenger; for the hospital, the patient and the bank, its customer.

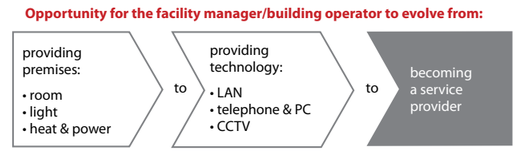


Figure 3.5 Workplace Management Evolution: From providing space to delivering services.

To bring together smart building management, facility management and enterprise business processes, it is necessary to have a new architecture for business and system integration. As shown in Figure 3.6, the architecture will necessarily provide three distinct layers: subsystem and application integration, business process management and unified communications to provide integration at the data, process and communications levels respectively. This contrasts with building-centric smart building solutions that generally provide only data integration.

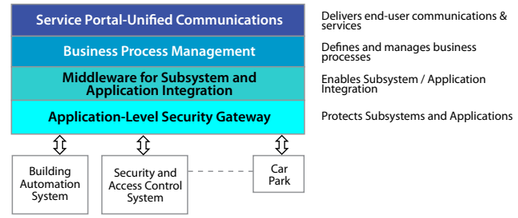


Figure 3.6 A Software Architecture for Organization-Centric Smart Buildings

Benefits and Opportunities

The idea of an organization-centric smart building is a paradigm shift that is already happening. It takes the idea of smart building beyond the restrictions of the conventional, electro-mechanical demand-response model to provide a business solution that can bring true value to developers, building operators and building occupants alike.

Here are some examples of practical business benefits and opportunities:

- The ability to drive lighting control through automated processes, eliminating the need for wall switches.
- Management of infection control in hospitals through the ability to reconfigure hospital spaces based on the patient's infection status.
- Unified access control across multiple properties.
- Business process automation of activity-based management (e.g., hot desking) utilizing smart building features.
- Integrated space management linked to smart building services in shopping malls.
- Enterprise energy management driven by the metric of energy per person rather than energy per square foot, which takes into account (and allows trade-off of) comfort and energy savings.
- City-wide demand response management across multiple properties for district cooling and smart micro-grid applications.

This article is a summary of a book to be published through Amazon.com

Data Protection and Disaster Recovery in Today's IT Environment

World events such as the earthquake and tsunami in Japan emphasize the need for secure data backup and retrieval in times of crisis. For today's global companies operating in changing governments, changing political situations and unrest in various areas of the world can all affect continuity and access to critical business data. The strategic importance of quality data retention and access cannot be overstated. Preparation and the ability to move quickly are crucial to uninterrupted workflow and stability. Even in the absence of a natural disaster, day-to-day operations and access to data to allow for uninterrupted business is a challenge for companies with offices world-wide.

Ilan Zachar

For Ilan Zachar, Chief Information Officer of Atrium European Real Estate, one of the leading real estate companies focused on shopping center investment, management and development in Central and Eastern Europe, working through these challenges is not just an empty exercise. From offices in the Netherlands, he oversees operations covering 300 users in eight countries.

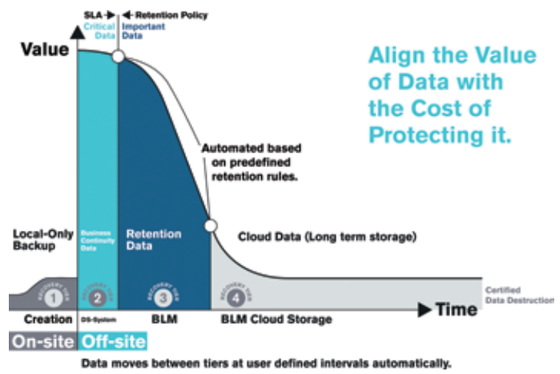
"When we assumed independent control of Atrium, the company was extremely fragmented," he says. "One of my first goals was to centralize IT operations. But before we could even begin to focus on consolidating applications, we had 10 different domains to sort out. To even do a mass e-mail to everyone was a process. So, I moved the IT function to our Netherlands base and we started providing solutions to the field from a central location."

Another major issue faced was an antiquated data back-up process. When called upon to rebuild or restore data after an outage, Zachar's team discovered that previous 'tape solutions' had failed due to software and/or server issues. What they found was an IT manager's worst fear—unreadable tapes.

Several of the challenges Atrium faced as they searched for a new solution to their secure data backup and retrieval system included: gathering information in multiple languages; moving data from locations that were being shut down under limited timeframes (many with older or incompatible systems in place); modifying and changing six different accounting systems (from different countries) for consistency; adherence to government requirements for European certification; and looking for ways to accommodate mobile devices such as laptops and iPads—all while trying to keep costs down.

Their final decision was to partner with RestorePoint, a solutions provider for data and disaster recovery services, whose team manages and implements the solution. "We have been providing data recovery solutions for over eight years and are solely focused on providing this service to our clients," says Abdul Altamimi, VP Technical Services, of RestorePoint. "So, our knowledge base is very deep and we are able to customize the solution to do whatever the customer wants in terms of meeting their RPOs and RTOs," he continues.

Zachar notes that many factors come into play for such a big decision: "When you look at a solution like this, you must consider not only the cost of hardware and software, but also the cost of recurring equipment and also management of the process. The cost of management with the number of components we have was hard to quantify—many of the solutions we considered were very labor intensive at the local level. Finding a solution that allowed us to manage all backups from a single location was important to us. An added benefit of partnering with RestorePoint was the fact that they also managed the implementation process for us.



Additional cost savings are found within RestorePoint's tiered pricing system, enabling more consistent month-to-month budgeting. Data is restored with no restrictions on bandwidth or amount of data. "Not many solutions allow you to automatically tier your data on the backup side. They always tier it on the production side," says Mr. Altamimi. "Atrium's Tier 3 offsite storage for their backup data with RestorePoint costs them about half of what Amazon cloud storage costs," he adds.

"The most important thing about our solution is the licensing model," he continues. "Our solution is not installation specific, so we don't care how many locations you have and how many systems need protection. As Atrium expands, they won't get charged for the number of extra locations and systems they are protecting, but rather for the amount of data stored in the different storage tiers at RestorePoint after de-duplication and compression. The technology we use to provide our backup and disaster recovery services is the only FIPS140-2 certified backup technology in the market right now."

"The RestorePoint solution was perfect for us because it was centralized," commented Zachar. "I can audit my backups from a centralized Web Portal without having to take someone else's assurance that the life blood of our business, our data, is properly protected. I am now able to securely manage the remote backup process for hundreds of devices located in a number of countries over the Internet from our Amsterdam location without the worry of whether or not the process is getting done—and done right! And since it is FIPS140-2 certified, our auditors know it's secure, it's safe."

The system proved its worth during a recent hurricane in Florida. Once it was determined the hurricane's path was heading toward one of Atrium's sister company's location in Miami, the disaster recovery plan was immediately activated. Not satisfied with the Internet's ability to withstand nature, Zachar arranged to also have backups flown in within 24 hours, doubling his safety measure even though data was already replicated. "RestorePoint had a box containing our data on the next flight just in case we needed it to restore operations. Their commitment to doing whatever it takes to help us restore and get back online is part of our service agreement," he continues. "We run a very small IT department. We are a real estate company—our core business is not IT—so for us, it really comes down to control, reliability of the service, and the peace of mind you get working with a solution provider that makes the process hassle free."

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Alpharetta, GA 30005

Tridel Sets the New Global Standard for High-Tech Condominiums

Rob Murchison
Intelligent Buildings, LLC

Tom Shircliff
Intelligent Buildings, LLC

Tridel is raising the bar for the way condominiums will be built and managed that creates a new level of value for owners. Tridel is an international company that is one of the largest condominium developers in North America. Since Jack DelZotto arrived in Canada from Northern Italy in 1927 he has been focused on quality, and with the formation of Tridel in the 1950s, his three sons have continued that tradition while continuously investing in research and innovation.

Today, CIO Ted Maulucci leads the information technology innovation at Tridel and is also a Realcomm Technology Advisor and recipient of a Realcomm Digital Real Estate Impact award (the Digie). He worked with Cisco and their partner, Intelligent Buildings, LLC. to redefine the way their condominiums are designed, built and operated. He had a vision that would utilize information technology and IP networks to solve many of the traditional problems and improve sustainability, as well as create new experiences and value for owners.

"Information Technology (IT) has the power to transform entire industries and change lifestyles but I believe IT has been greatly underutilized in real estate" said Maulucci.

Maulucci challenged these companies to consider all aspects of construction, operation and lifestyle from a cost and functionality perspective and to create a new model that would provide the maximum benefits and include 'future proofing,' but with one catch: no additional project costs. The Tridel construction team was engaged under the direction of Bruno Giancola, Vice President of Project Management.

"In some ways it would be easy to spend money to add gadgets to a building, but that changes the cost structure and also makes assumptions for our owners. We wanted an approach that created a better mousetrap with better amenities, but also empowered the condo corporation to continue to evolve and make decisions for themselves." commented Giancola. "We are really intent on long term value creation."

Technology has changed the way building systems work with digital HVAC controls, IP security cameras, addressable lighting controls and more; but we also see it in our lifestyles with social networking, smart phones, tablets, ubiquitous wireless, ultra-high speed Internet, cloud services and IP television.

One way Tridel showed their commitment to bringing the latest technological advances in community connectedness to their homeowners was to implement a Virtual Concierge service using High Definition Video Interaction (HDVI).

'Vanessa' is the Reve's Virtual Concierge, a live person communicating through two-way digital video and voice conferencing and advanced access control through state-of-the-art equipment and technology, who can answer questions, open the door (or choose not to for unannounced guests), accept deliveries and packages, schedule amenities, and enhance overall security from a remote location offering uninterrupted services.

"We know that being connected has proven to facilitate interaction and enhance the quality of life for our residents," said Jim Ritchie, Senior Vice-President. "Our Virtual Concierge system, supplementing our traditional and outstanding concierge service, is an example of our industry leadership. We know that life is busy and that it makes sense when things get done faster and smarter."

While some may fear that an increased reliance on technology may run the risk of losing the personal touch, Tridel is finding that the Virtual Concierge technology has been very well received by homeowners.

Meaningful sustainability requires more information and control in buildings in order to reduce and measure the environmental impact such as real time electrical metering. Yet design, construction and operation of buildings still follows a decades-old process that can lack a holistic or long term view of these changes. For example, each of the aforementioned building systems' vendors usually install separate cabling and connectivity infrastructure that drives up project costs, increases greenhouse gases and waste (from production of the materials), and prevents interoperability between those systems. In addition, each time a new system is added to a property it then gets an additional electronic and cabling infrastructure.

"Many of these systems have the same basic connectivity requirements but they are not considered as a whole and they are also not held to a uniform set of requirements for reliability and electronic security," commented Rick Huijbregts, PhD, VP of Real Estate Solutions for Cisco Canada. "At Cisco, we felt we could respond to Tridel's challenge and link the separated designs together to make both a better building and a better business result."

A team consisting of members from all three companies worked to create a side by side comparison of the current approach and the Cisco powered approach. They used a recently finished project to compare and scrutinized the alternative plans, costs, schedule and all other details of the project. The team consulted with every existing building system's vendor and manufacturer to validate their requirements, warranties, maintenance, performance and product road maps. The next step included screening several potential new system providers.

"It was critical that we combed through every aspect of the construction and operational process to understand the differences. We worked with our partners to build a comprehensive cost model that tracked every dollar," said Giancola

It was determined that in addition to cost efficiencies, a Cisco IT backbone would provide greater security, reliability and flexibility for the building systems and owners, and would also be a platform for new features, services and experiences. This process applied not only to all comfort and security systems in the building, but also to utility and media service providers. Maulucci also intends to speed innovation by working cooperatively with these companies on providing smart electrical monitoring and IP television services to Tridel owners. This comprehensive service package was key to convincing leadership that this was not just technology vision, but a serious approach to leading and changing an industry.

The Reve also includes a concept called EcoSuite, which has been positioned as the future of green condo living. EcoSuite is an innovative penthouse unit that combines environmentally preferable features and finishes with cutting-edge technologies.

Tridel has committed to an ongoing partnership with Cisco that will continue this evolution of digital real estate throughout their constantly expanding portfolio of properties. •

Tom Shircliff and Rob Murchison are co-founders of Intelligent Buildings, LLC, a real estate strategy consulting firm headquartered in Charlotte, NC (www.intelligentbuildings.com).

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The Future of the LED Lighting Market Looks Bright

Alejandra Lozano
Research Analyst
Frost & Sullivan

"The DOE estimates that widespread introduction of LEDs could save $260 billion in U.S. energy costs."

Commercial, institutional and industrial buildings use about half of the total national energy consumption, and building owners and managers have turned their attention to reducing the amount of energy consumed by lighting systems. Light-emitting diodes (LED) lighting products have emerged as an excellent option since they can reduce electrical energy consumption and carbon footprints over traditional incandescent and fluorescent lighting products. While the wattage required for the lumens of an average 60 watts (W) bulb is 60W for an incandescent bulb and a compact fluorescent (CFL) bulb in the range of 13W to 15W, LED bulbs only require about 6W to 8W.

LED lamps also have a longer life span than other lighting technologies, leading to lower operation and replacement costs. While incandescent bulbs have an average life span of 1,200 hours and CFLs have an average life span of 8,000 hours, LED bulbs have an average life span between 25,000 to 50,000 hours. In addition, LED lamps offer reduced heat production and are more environmentally friendly, since they contain no mercury.

Figure 1-1: Comparison of Lamp Features (North America), 2011

Features	Incandescent Lamps	CFL	LED Lamps
Life Span	1,200 hours	8,000 hours	25,000-50,000 hours
Wattage required for lumens of an average 60W bulb	60 watts	13-15 watts	6-8 watts
Heat Emission	85 BTU/hr	30 BTU/hr	3.4 BTU/hr
Light output of 1,600 lumens requires	100 watts	25-30 watts	15-20 watts
Temperature sensitivity	High	Medium	Low
Color	Needs filters	Needs filters	Available in many hues
Toxic Materials - Mercury	No	Yes	NO
Others	Abrupt failure and fragile to external shock	Sensitive to frequent on/off cycles	Dimming over time—no abrupt failure, lights up faster and immune to cycling

Source: Frost & Sullivan.

Due to these benefits, the LED market has witnessed major growth in the last few years and is anticipated to grow rapidly over the next seven years, making it a very attractive market. The growth in the industry is also driven by government programs to fund R&D efforts and create educational programs.

Government Initiatives

The Energy Policy Act of 2005 required the U.S. Department of Energy (DOE) to create a program that supports R&D and speeds up market introduction of high-efficiency and high-performance solid-state lighting (SSL) products, including LED lighting products. Through this program, the DOE provides millions of dollars of funding each year in matching funds through competitive solicitations, grants, and other federal funding mechanisms to U.S. companies that are doing R&D in basic energy science, core technology, product development, and manufacturing. The Energy Independence and Security Act (EISA) of 2007 also authorized a lighting R&D program, granting $10 million in funding per year from 2008 to 2013.

The ultimate goal of these programs is to accelerate progress toward creating a U.S.-led market for high-efficiency lighting products that save more energy, reduce costs, and have less environmental impact than other lighting products. Because these DOE programs intend to enable successful market introduction of SSL products for general illumination in the United States, only domestic entities are eligible to apply. Foreign companies can only apply as part of a project team.

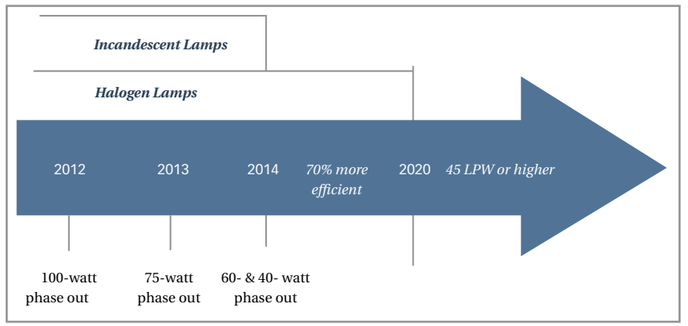
Supportive Legislation

Another key driver in the LED market is supportive legislation. The lighting market in North America has been drastically impacted by legislative changes. The focus on reducing energy consumption as well as increasing environmental awareness has prompted governments to pass legislation that supports the development of energy efficient lighting products.

The EISA of 2007 mandated increases in the energy efficiency of general service incandescent lamps. Under the EISA, all light bulbs must use 30 percent less energy than the current products, starting in 2012. The Act stated that starting January 1, 2012, 100W incandescent bulbs cannot be manufactured or imported for sale in the United States. In July 2009, the DOE published a final rule amending standards for specific general service fluorescent lamps and incandescent reflector lamps. Compliance with these established DOE standards are required starting on July 14, 2012. Starting January 1, 2013, the 75W lamps will be phased out. The 60W and 40W bulbs will be phased out starting January 1, 2014.

Beginning on January 1, 2020, the minimum efficacy requirement will become 45 lumens per watt (LPW) for all light bulbs. By 2020, bulbs must be 70 percent more efficient. These standards will support growth in the LED lighting market by helping to increase the replacement of incandescent, halogen and, in some cases, CFL and fluorescents, with LED lamps. Although other types of technologies can also become substitutes, restrictions on use of toxic substances and minimum efficiency standards are favoring the use of LEDs, giving this technology an advantage over even CFLs that currently use mercury.

Figure 1-2: Timeline for Phase Out of Inefficient Lighting (United States), 2011



Source: Frost & Sullivan.

The EISA of 2007 also directed the DOE to establish the Bright Tomorrow Lighting Prize (L Prize) competition. The L Prize rewards manufacturers who develop a superior LED lamp with efficacy of 90 lumens per watt (lm/W) to replace the standard A-type incandescent 60W lamp, and an LED lamp with efficacy of 123 lm/W to replace the PAR 38 halogen lamp. After the prizes are awarded, the federal government may purchase the lamps for its own facilities. The L Prize has helped incentivize manufacturers to develop LED lamps by providing a major advantage to successful entrants. In August of 2011, Philips won the L Prize after testing confirmed that its EnduraLED lamp met the output, quality of light, intensity and color requirements and is a true replacement for the 60W incandescent bulb.

Pricing Pressures

Although the technical benefits as well as government programs and legislation are driving double-digit growth in the LED lighting market, one of the major factors restraining growth in the market is the high initial cost. The initial cost of an LED lamp is higher compared to those of its competing technologies. While incandescent light bulbs typically cost less than $1, the least expensive LED light bulbs currently available are about 20 times more expensive. In 2011, Lighting Science Group and Dixon Technologies introduced a new LED light bulb that is priced for less than $15. However, such a large difference in price is turning consumers away from LED lighting products.

The downward pressure on price has become a major challenge for LED lighting product manufacturers. With new companies entering the market to take advantage of the growth in the LED segment, price competition has further intensified. A number of Asian manufacturers, primarily focused on replacement LED bulbs, have begun to sell their products in North America. Although these LED light bulbs from Asia are less expensive, they do not offer the benefits of high quality LED lamps and are prone to failure.

As LED technology improves and the technology becomes more widely used, the LED lighting industry is expected to develop manufacturing processes that reduce the cost of the lamps, which in turn is expected to accelerate market adoption. In addition, ongoing research and government initiatives are expected to lead to lower costs of production and, thus, lower prices to consumers in North America. Prices are estimated to decline another 20 to 30 percent over the next seven years. In fact, Lemnis Lighting recently introduced LED replacement bulbs selling for $4.95 and $6.95.

Market Opportunities

Growth will be primarily witnessed in the commercial market due to faster return on investment (ROI) in certain applications such as the retail and hospitality segments. In these segments, the energy savings alone make it a great proposition and, when combined with lower maintenance costs, the savings can be substantial. Growth in the industrial segment will depend on increased consumer awareness and the ability to provide a fast ROI.

The DOE estimates that widespread introduction of LEDs could save $260 billion in U.S. energy costs. Consumers are expected to increase their demand for LED lighting products and the market is anticipated to continue to witness double-digit growth. •

Alejandra Lozano is a Research Analyst for the Environmental & Building Technologies practice within Frost & Sullivan (www.frost.com), the global Growth Partnership Company. Her expertise encompasses lighting, building automation system controls and services, home automation, fire and life safety, and integrated facilities management services.

continued from page 22

particular manager or only office properties in Phoenix.

Saah: I imagine data integrity and normalization was a big challenge.

Segal: Yes, at first. We kept harping about the data that was inputted, the importance of accuracy, consistency. But as we developed tools to gather information in a normalized way, we could control what went in, ensuring that we delivered value in what came out. The platform has rapidly become a mainstay of the workday, which has been very gratifying for us. In fact, recent features offered to leasing staff were so popular our IT folks got a standing ovation!

Saah: Well done! Given the number of elements involved, has it been difficult to maintain and enhance?

Segal: We've incorporated two features that make life easier. From the data standpoint, we embedded the ability to initiate actions right in the application. If a user needs to make a change, they can initiate that right from the view, which helps keep data accurate. From the feature standpoint, we have created page templates that are populated on the fly. Rather than maintaining hundreds of pages, we can make changes in one place.

Saah: While it is not directly related to this deployment, could you tell us about your chat tool for leasing?

Segal: We've incorporated chat access into our leasing website so a prospective tenant can chat with us about a space. People in various offices can respond. We created a dashboard with icons for every piece of information such as driving directions, contact info, and photos; clicking lets you post the data right into chat, providing instant information. So someone in Houston can service a prospect in Dallas and copy and paste anything they want to know about the space into the chat. In a very short period of time we have doubled the number of tenants we've brought on this way!

Saah: Nice! You mentioned challenges you overcame delivering these products. What techniques helped manage change and facilitate adoption?

Segal: Initially, we justified changes we were proposing by explaining the benefits, painting a big picture of the future. But we found that the benefits were too far down the road. People tended to focus on change and the effort related to that, which of course generates all kinds of reactions. So we began to take a more practical approach. We embedded analysts in operational meetings to listen to what was working, what wasn't. Our approach became: "We solve problems." This helped immensely. We were no longer trying to bring them into our world, our project. We were going into their world, their problems.

We also instituted Boxer University, online classes to train people on what we do; courses on the use of the tools, on accounting practices such as how to handle pass-thrus and escalations. It's helpful, and anyone can take advantage of training according to their schedule.

Saah: Tell us about projects you have on the horizon.

Segal: We're planning to introduce a document management product called M-Files. What we like about M-Files is the technology—it is built on .NET and designed for interoperability. They have spent a lot of time on APIs; it is built to play well with other apps rather than attempt to build all functionality into their product. We like the agility of that approach.

Another solution is a case management system. Our business model is built around doing everything in-house - from HVAC maintenance to lawyers to architects to marketing, so tight integration of work flow is critical. We have many small teams and they all have similar needs. Everyone needs to be able to create an item, assign it, track the status, etc. So we are building a single platform for all teams to track and manage their work. We believe it will really improve efficiency and service delivery.

Saah: Thanks Justin, for taking time to share your success and insights.

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continued from page 23

leads, opportunities, Win/Loss, assignments, projects, splits, and integrate with AR, AP and Project Costing.

Saah: Obviously agents are very protective of their contacts and turf wars often arise when implementing an enterprise CRM. How are you dealing with that?

Levi: We have very specific policies about transparency, client relationship governance, and ownership of contacts. If an agent leaves, we export their contacts and give them the file. Our Managing Principals are the key gatekeepers/arbitrators. They decide ownership, co-ownership, junior ownership in their markets and can escalate to Regional Managing Principals and National Service Line leaders when necessary. We are working toward a very transparent platform nationally, but it is also critical to respect the confidentiality of client information and provide SPOC, anonymity and internal firewalls to protect client interests.

Saah: Well, good luck with that. We'll have to check back in 6 months and see how it is going. So overall, Jon, what would you say are your biggest challenges?

Levi: Keeping up with our Property Management growth is a huge challenge. They are very proactive and are pushing us for solutions. We have 450+ on-site management offices and are growing at a rate of 60-70 million square feet a year. As a SAS70/SOC1 audited business unit, they are very disciplined operationally with rigorous change management that involves Human Resources and IT.

The second challenge is standardization. We now have about 280 applications and strategically need to get that down to 100 or fewer. So, much like with our CRM solution, we need to ferret out siloed point solutions and replace them with highly scalable enterprise-wide platforms.

Saah: Jon, it's been a pleasure as always. Thanks for taking the time to talk with us. •

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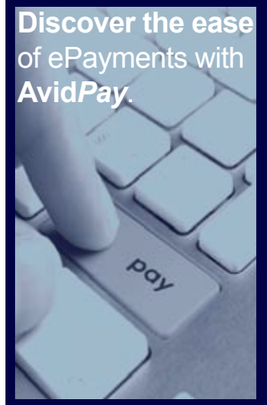

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What is Stopping a Revolution?

Andrew Carey
Managing Director
RealFoundations

Considering the global real estate and building industry, as an asset class, is estimated at greater than $20 trillion in market value and presuming that buildings contribute to approximately 40% of the world's energy consumption, then it may be expected that billions of dollars are now be being invested in energy reduction measures. At this stage, is that truly the case?

Certainly, there are some stunning showcase projects around the world and progress has been made in numerous areas, but the process of change does seem to be very slow. Arguably this observation is not reflective of emerging markets, many of which have 'Smart Cities' projects underway. Amongst developed markets, however, organic behavioral change is the norm rather than a paradigm leap. Throughout most of Europe, governments and private sector entities remain cautious to investment in energy reduction measures (often out of financial necessity). There also appears to be a low appetite for 'spend to save' initiatives and taking a true leap of faith with regard to new technology.

What are the Challenges?

Certainly poor data and a lack of data standards is a contributor to the pace of change. Most organizations understand the value of the 'Measure, Analyze and Act' cycle. Historical processes for gathering energy and environmental data from paper-based sources (e.g., invoices) are rapidly being replaced by the capture of source data from automated metering and sub-metering.

However, this data is often only referenced for descriptive performance reporting rather than applied to more advanced predictive or prescriptive analysis.

It is still uncommon for real estate environmental information to be collated, across a wide portfolio, into a Building Operations Control Center which permits centralized control and enables advanced analytics to be exercised across the portfolio.

'Vectors of Value'

The fragmented nature of the real estate industry and the complexity of the financial structures across the various parties appear to be acting as a barrier to accelerated progress. The real issue seems to be a fundamental disconnect between who pays and who receives the benefit.

A 'Vectors of Value' approach helps to explain the dilemma, a suggested set of these are discussed in turn below.

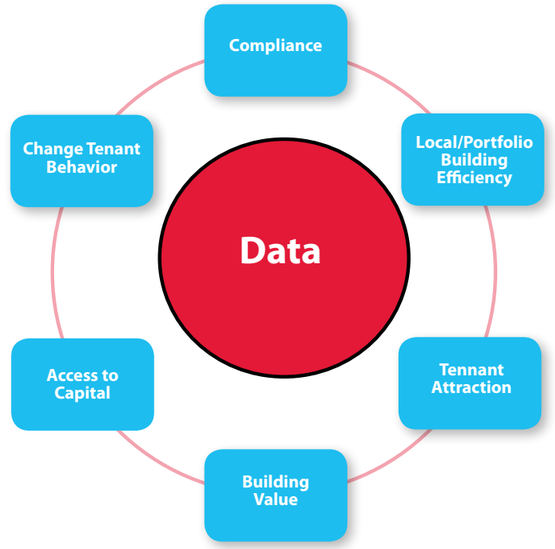
Compliance

Governments are increasingly using regulation (and Building Standards) to drive sustainability behaviors within real estate and building enterprises as well as across the industry as a whole. Accreditation programs such as LEED or BREEAM are having a marked impact on the market. Research indicates that buildings with such accreditation have higher tenant attraction and increased value in comparison to those without.

As more clients require their leased space to meet minimum criteria for LEED and BREEAM, these programs appear to be driving the market towards developing and re-fitting properties to a higher performance score.

The cost of achieving compliance is falling squarely on landlords and/or developers, and they are keen to pass these costs on to tenants by way of rent premiums. In certain instances, the building accreditation is sought solely in order to attract tenants rather than to serve as a source of additional rental income.

Andrew Carey is a Managing Director with RealFoundations and is based in London where he serves as head of their EMEA practice. Andrew has over 15 years Management Consultancy experience in providing strategic, organization change, procurement, business improvement and technology services to clients in the real estate, facilities and construction industries.



Local Portfolio/Building Efficiency

Local building measures, such as changing to low energy light fittings and improved local controls, are now commonplace in the market. Additionally passive measures, such as improving insulation or reducing solar gain through shading, are increasingly being adopted.

It does appear that areas where tenants and landlords can physically see the product are more likely to attract investments rather than those that are non-visible to either party. The value in being able to 'market' an environmental solution as a building is an influencing factor for attracting investment.

Similarly, it might be expected that new visible sustainability services (e.g. the facility to charge electric cars) may prove attractive sources of investment.

Whoever pays the utilities costs technically has the greatest incentive to pay for energy improvements. However, the savings levels for energy schemes can have long paybacks (5 years or more). As lease lengths become shorter in response to tenants requiring more flexibility across their portfolios, such investments become less attractive.

Significant operational savings can be gained in reduced planned and reactive maintenance activities, particularly in instances where advanced analytics are possible. However, more advanced activities such as automated retro-commissioning of buildings and the use of analytical rules engines still remain uncommon.

The main beneficiary of these types of savings, a service provider, is often reluctant to invest in such solutions. The reasons for their reluctance are complex and there are a number of factors that influence their position. For example, there may be tax implications and the solutions may have to be removed at the end of their contracts, at the service provider's cost. Additionally, there are the risks of product failure as well as the possibility of negative impact on service levels. Each of these factors (among others) commonly pushes the service provider toward a low risk strategy of adjusting existing equipment rather than installing new products, even if energy incentive measures are present in their contracts.

Tenant Attraction/Building Value

Tenants are becoming more sophisticated in their selection criteria for properties. Landlords and developers are increasingly recognizing that they need to invest in compliance and local/portfolio building efficiency measures in order to attract and retain tenants. This investment is required even when the benefit is only realized by the tenant and service provider.

There are efforts to address this imbalance through the introduction of the 'Green Lease' that aims to share the costs and the benefits of such measures. If these increase in popularity, they may unlock some schemes that are being held back as a result of the imbalance.

It is expected that the requirement for lower service charges (both energy and maintenance) will become a key factor in attracting and retaining tenants, and as data improves, it will be possible to distinguish clearly between high- and low-performing buildings.

Access to Capital

Investors are increasingly including socially responsible investment criteria into the terms of their capital release. The nature of the real estate and building industry tends to ensure that 'back to back' contract conditions exist through the supply chain. Having such conditions filter through the supply chain has the potential to radically re-shape the market.

Conclusion

So what is stopping a revolution? In simple terms, the fragmented nature of the market, long-term nature of property, and long-term paybacks are all factors. However, the picture is not all gloomy. Governments are passing legislation to drive behaviors, investors are making some radical statements on social responsibility, 'Green Leases' are becoming more common and there are some superb new and refitted showcase projects across the world.

The last element of the 'Vectors of Value' is tenant behavior. This element has the opportunity to create a virtuous circle as tenants start to see the benefits and therefore create demand for operating from a sustainable portfolio. This, when coupled with the governmental and investors' requirements, should create a 'push and pull' in the market on sustainability.

At the core of the virtuous circle has to be quality data and analytics which can be easily accessed and acted upon. Otherwise, no party across the 'Vectors of Value' can justify changing with any confidence. This appears to be the barrier for change and perhaps one of the main factors that is standing in the way of a true revolution.

Mobile Apps: What's New for Commercial Real Estate Professionals

The age of smart phones and other mobile devices has descended upon us quickly—so quickly that it might best be likened to a revolution rather than simple progress. There seemed to be very little time between getting paged to having email on your phone, to then having a miniature computer in your hands more powerful than the one on your desk. Today, seeing a new phone without email and internet might feel a bit like looking at a VHS player or floppy drive. From a Weather Channel app to a full-featured four track recording studio, if you need something done, chances are there's an app for it!

While mobile products for the commercial real estate industry might have been slow getting to the app shelves, there are several available now offering powerful capabilities *on the go.*

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CoStarGo
In August 2011, CoStar Group launched CoStarGo™, a powerful iPad app that allows commercial real estate professionals to access CoStar's extensive property and market data, sales comparables and tenant information in a dynamic mobile interface wherever they are. CoStarGo is available for download at the Apple App Store at no charge to subscribers of CoStar's professional suite of online products.

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Visual Lease
Visual Lease is a comprehensive, powerful and easy-to-use web-based lease management and lease administration software system that enables real estate professionals to control, report and make better decisions on leases and property information. It is accessible anytime, anywhere through your iPad, iPhone or Android device.

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Property Capsule
Property Capsule is a cloud-based technology platform that helps you manage and present your commercial real estate leasing portfolio in real-time to potential tenants using your iPad or other mobile device. Specialized tools in the Property Capsule suite include the iPad portfolio, interactive site plans that re-draw automatically whenever a tenant changes, flyers that regenerate when information changes, and more.

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eBMS/Mobile
eBMS/Mobile from Tyrrell Systems Ltd allows the management of building control and monitoring systems via the iPhone, iPod Touch and iPad devices using wireless or 3G networking. Based on the Niagara AX framework from Tridium, it collaborates with intruder alarms, fire alarms, temperature controls and the connected systems. Functions provided include monitoring and adjustment of data points (such as temperatures and presets), viewing of graphs, extension of time schedules and the ability to view, accept and clear system alarms—all through an intuitive user interface.

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Yardi CRM Mobile
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Technology's Impact On The Ways We Use Commercial Space

The Information (Internet) Age and the Potential Effects On the Commercial Real Estate Market - January 15, 1992

Jim Young
Founder and CEO
Realcomm Conference Group

"I remember the reactions I got in the early 1990s when I suggested to real estate professionals that their 10 year Blockbuster leases might not make it."

Twenty years ago, I published an article that started my real estate technology career. The actual document began as an outline I created while on a train in Europe, on an extended vacation between careers. I had spent about 10 years in the technology sector starting in the early 80s, where I worked for great visionaries like An Wang, Founder of Wang Laboratories.

I had decided it was time to make a significant change, so in 1989 I made the decision to leave the technology industry and make a career change to the real estate industry. I had always been interested in real estate, development and urban planning and figured I could take what I had learned in the technology industry and apply it to the real estate business.

Since this was going to be such a major change, I decided to do something I had never done before: take a month-long vacation in Europe. I had heard about sabbaticals and really wanted an opportunity to clear the hard drive before I made the move. My hunch was right and I enjoyed over 30 days of no schedule, agenda, appointments or phone calls.

The time off seemed to be working as my mind was freed to really explore the new industry I was about to enter. During a train ride in Austria, while gazing out the window at the incredible landscape, I had a sudden 'information rush'. Nothing like this had ever happened before; the thoughts and ideas kept coming faster and faster. I asked my girlfriend (now wife) for a piece of paper and a pencil and began to frantically write down my ideas. This scribbling was the beginning of my Info Age article.

It took another couple of years to totally construct my thoughts and clean up the document and I officially published it on January 15, 1992. The main idea was centered on the concept that we built commercial real estate to facilitate the commerce of the day. In the agrarian age we built barns, in the industrial age we built factories, and for the last 70-100 years we have been building real estate to accommodate a pre-information (Internet) age for commerce. Office, industrial, retail, mixed use and other forms of real estate were built to accommodate how we were living.

The second premise was to imagine what would happen when technology advanced to the next logical step (iPads, digital cameras, the cloud) and affected the real estate that was used to facilitate an analog world (Barnes & Noble, Blockbuster and Egghead Software, as well as banks, offices and other forms of real estate).

I remember the reactions I got in the early 1990s when I suggested to real estate professionals that their 10 year Blockbuster leases might not make it. While I was clearly off on my timing, it is interesting to look back 20 years and see just how many of the predictions were spot on. From Eastman Kodak's manufacturing space that processed film to the retail shelves at Blockbuster, as well as the industrial space where the books, magazines and newspapers were printed, it has been quite a journey to watch the headlines as these once mainstream companies and their products became obsolete, eliminating the functional need for the space, just as we had done years earlier with barns and factories.

It's now been 20 years since I put my predictions on paper during that train ride through Austria and it has certainly been an interesting journey for me. I hope you take the time to read this short article. Now that the headlines are substantiating what were once considered wild claims, the ideas and concepts may provide some insight into what our commercial, corporate and institutional real estate market might look like 20 years from now.

SCAN to read Jim's Info Age Article or visit: realcomm.com/email/infoage.pdf

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